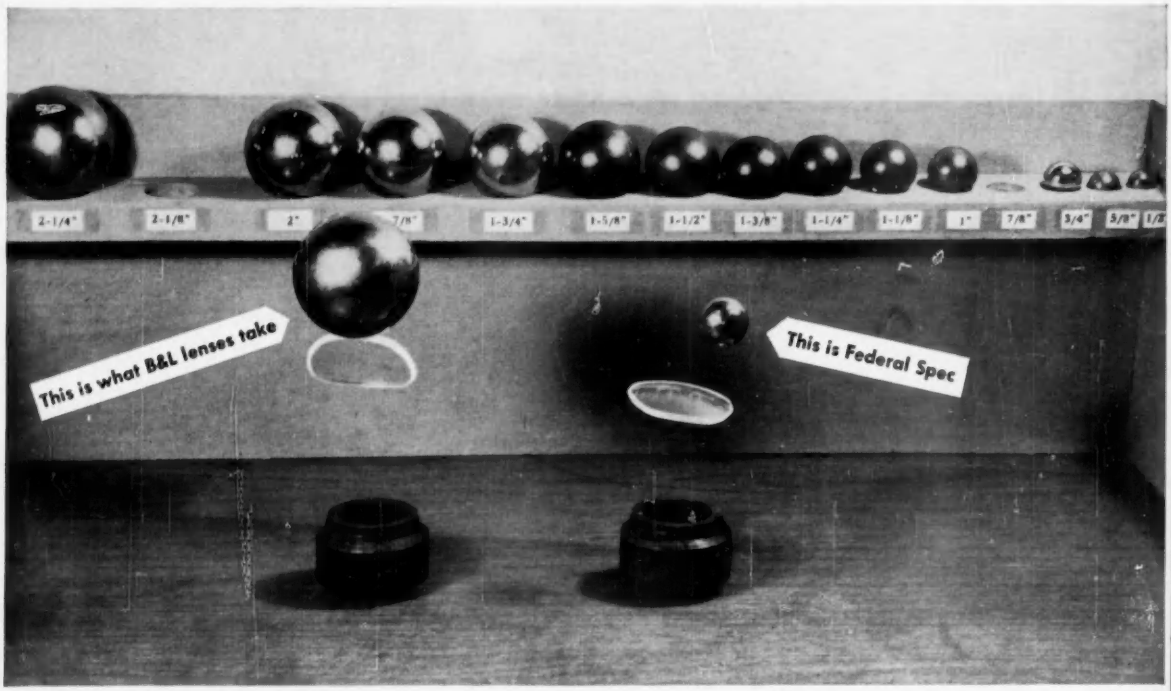
Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • JANUARY, 1959 • 50¢
Published By Alfred M. Best Company, Inc.

B&L Bal-SAFE lens takes blow 14 times heavier than "standard"



Here you see two bouncing steel balls stopped in mid-air by the magic eye of the high speed camera. The balls were dropped simultaneously from a height of more than four feet on a pair of B&L Bal-SAFE safety lenses.

There's a story in this picture . . . but it's not in the photography. It's in the fact that a B&L Bal-SAFE lens, on the average, takes a blow 14 times heavier than that required by Federal specification. The larger ball in the photo represents a force 14 times greater than the small ball. (See chart below).

Eye accidents strike like lightning. Quicker than reflex can set up defense, the impact comes . . . from hurtling object or particles . . . and grave, costly eye injury may result. How much protection do your workers get against it?

The U. S. Bureau of Standards says a safety lens must withstand impact of 0.4122 foot pounds. The test is commonly made by means of a 7/8 inch steel ball dropped from a height of 50 inches. Most makes of safety lenses are thus tested. All must meet Federal specifications. But these specifications do not suggest the measure of safety above and beyond the minimum . . . such as the measure in Bal-SAFE lenses.

Through recent technological improvements, B&L toughens Bal-SAFE lenses—from a minimum of 5—to an average of 14 times the accepted standard. It costs you nothing extra, but it gives you so much extra—in protection for your workers' eyes, in security for the corporate purse.

For details on Bal-SAFE lenses and full line of B&L PROTECTION—*PLUS* Safety Eyewear, ask your distributor of B&L eye safety products.

KINETIC ENERGY OF STEEL BALLS

Ball Dia.		Weight Grams	Weight Pounds	Ratio To 0.50" Ball	Striking Energy 50" Drop Ergs.	Ft. Pounds	
½"	0.500"	8.5	0.01874		1.058 x 10^6	0.0780	
⅝"	0.625"	16.6	0.03660	1.953	2.092 x 10^6	0.1542	
¾"	0.750"	28.0	0.06173	3.294	3.486 x 10^6	0.2571	
⅞"	0.875"	44.9	0.09898	5.282	5.590 x 10^6	0.4122	A
1"	1.000"	66.8	0.14726	7.859	8.317 x 10^6	0.6133	
1⅛"	1.125"	94.9	0.20921	11.165	11.815 x 10^6	0.8713	
1¼"	1.250"	130.3	0.28726	15.329	16.347 x 10^6	1.2055	
1⅜"	1.375"	173.5	0.38249	20.412	21.601 x 10^6	1.5930	
1½"	1.500"	225.1	0.49625	26.482	28.025 x 10^6	2.0667	B
1⅝"	1.625"	286.1	0.63073	33.658	35.620 x 10^6	2.6268	
1¾"	1.750"	351.6	0.77513	41.365	43.774 x 10^6	3.2282	
1⅞"	1.875"	435.6	0.96032	57.247	54.232 x 10^6	3.9994	
2"	2.000"	529.7	1.16644	62.247	65.886 x 10^6	4.8588	
2⅛"	2.125"	634.9	1.39969	74.694	79.157 x 10^6	5.8376	C

A *Federal spec for impact resistance,* B *B&L minimum,* C *B&L average.*

BAUSCH & LOMB
SINCE B&L 1853

(For details, use Key # A-1 on card on page 1)

BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

MISCELLANEOUS

Laboratory Appliances 302
Fisher Scientific Co. Catalog contains over 1,000 pages of information on the latest developments in laboratory equipment. Special sections deal with lab furniture, safety equipment, instrumentation, glassware and supplies. Book is easy to handle and use and contains scores of ready reference tables.

Wire Rope Slings 303
Macwhyte Wire Rope Co. New bulletin catalogs a new line of safety slings. Slings feature "Safe-Guard" Flemish eyes and sleeves. Slings are recommended for applications where a soft sling body is required for flexibility. Models are also available to supply abrasion resistance. Bulletin outlines specifications, load ratings, fittings, etc.

Sounds for Safety 304
Falcon Alarm Co., Inc. Data sheet describes a line of "Self-Powered" horns which can be used to give effective warning in the case of disaster or accident. Useful for truck fleets and boat owners. Units use a Freon propellant to sound horn. Horns can be triggered by a simple choke mechanism.

Industrial Textiles 305
Paulsen-Webber Corp. Brochure illustrates varied industrial applications for textiles. Textile products such as nylon, canvas, flax, etc. can be widely used in the aviation, trucking, shipping, contracting and material handling industries. Some of the products described include truck tarpaulins and tie down ropes, web slings, weather cloths, etc.

Vibration Meter 306
Wayne-Kerr Corp. Technical bulletin lists features, specifications, and illustrates a new vibration meter. The new unit may be used for remote testing and for measuring the dilation and eccentricity of rotating parts in shafts, bearings, electronic components, etc.

Remote Handling Devices for Hazardous Materials 307
General Mills, Inc. Booklet describes devices such as mechanical arms, fuel handling systems, and cutting equipment for remotely handling radioactive, toxic or highly flammable materials. The organization and facilities of the company's Nuclear Equipment Department are also spotlighted.

Safe Use of Solvents 308
E. I. du Pont de Nemours & Co. Technical report offers a new approach for the relative safety of solvents used in "cold cleaning" of metal parts, etc. The report defines a new concept, a relative safety index for solvent evaluation, based on maximum allowable concentration, vapor pressure and the evaporation rate of solvents.

MAIL POSTAGE PAID CARD FOR MORE DATA

PERSONAL PROTECTION

Heat Protection 309
American Optical Co. Specifications sheet introduces a new respirator which has been designed to give workers a chance to breathe freely in heat laden atmospheres such as those encountered near kilns and ovens, where the temperatures range from 150 to 300 degrees F. For complete protection, the unit can be used with an aluminized asbestos suit.

Personal Protective Equipment Catalog 310
Chicago Eye Shield Co. 48-page catalog provides a helpful guide to the selection, application and maintenance of protective equipment. It includes a convenient chart which diagrams 17 basic classifications for industrial hazards. Information is included on just how to specify lenses and choose the proper filter lens for adequate eye protection.

Foot Protection 311
International Shoe Co. New poster dramatizes the need for wearing safety shoes. Poster colorfully illustrates the meaning behind the words, "Don't swear—instead—wear safety shoes."

Liquid-Proof Clothing 312
Olympic Glove Co., Inc. Data sheet introduces new garments which are impervious to most liquids. Included is a new extra-light, plastic raincoat. Also introduced is an all-vinyl coverall which is said to offer complete protection against rocket fuels.

From the Neck Up 313
Willson Products Div., Ray-O-Vac Co. 64 page brochure focuses on a complete line of protective devices such as face shield and goggles, respirators and hats which are designed to afford complete protection for industrial workers from the neck up. Of special interest should be the latest advances made in the use of plastic by the company's engineering department.

FIRE PROTECTION

Welding Screens 314
Singer Glove Co. Catalog supplement introduces new neoprene-coated fiber glass and aluminized asbestos cloth welding screens. The cloth protects against temperatures up to 1400 degrees F. Curtains, blankets and drapes are also spotlighted.

Explosion-Proof Electrical Equipment 315
Crouse-Hinds Co. Folder records an interesting conversation between an electrical engineer and a company representative on the merits of electrical equipment for hazardous location use. Explosion-proof equipment, from lighting to motor controls, is discussed as well as construction principles and applications, etc.

(Continued on the next page)

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JANUARY, 1959 **Please send me the following free data**

Free Bulletins (Cont'd)

INDUSTRIAL HYGIENE

Dust Collector 316
Joy Mfg. Co. Attractively designed two-color bulletin illustrates a new wet-inertial type dust collector which is only one-tenth the size of other collectors of comparable performance. More than a dozen photographs and performance curves, cutaways and specification charts highlight this new product.

Emergency Oxygen Unit 317
Oxygen Equipment & Service Co. Bulletin describes an entirely new concept in resuscitation type equipment. A new unit acts as an aspirator, inhalator and a resuscitator with improved Venturi Action control to eliminate spring and toggle mechanisms and reduce service requirements.

PLANT MAINTENANCE

Wood and Aluminum Ladders ... 318
Patent Scaffolding Co., Inc. Bulletin contains illustrations and construction details defining over 20 different types of ladders. Ladders are designed with the service needs of painters, electricians, mechanics, roofers, etc. in mind.

Liquid Stainless Steel 319
Lockrey-Fater Corp. Brochure offers a corrosion resistant, surface coating which is permeated with thousands of microscopically fine flakes of stainless steel. The coating gives protection against corrosive materials to wood, metal, concrete, brick, plaster board and composition board, etc. Technical data and characteristics are outlined.

Floor Hardeners 320
A. C. Horn Div., Sun Chemical Corp. Attractively designed booklet is used to outline the company's new advances in patching, resurfacing and topping compounds. The characteristics and instructions as to how to apply the new compounds are included. Of special interest should be a new non-metallic hardener for concrete floors.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
116	Ice Grippers
117	Safety Shoes
118	Safety Boots
	FIRST AID AND HYGIENE
122	Sanitary Drinking Facilities
125	Resuscitators
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127	Burn Medication
128	First Aid Kits & Supplies
130	Throat Medication
131	Eye Wash Fountains
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	FIRE PROTECTION
143	Safer Solvents
144	Degreasing Machines
146	Welding Curtains
148	Watchmen's Control Systems
149	Extinguishing Ash Trays
	LIGHTING EQUIPMENT
150	Alarms & Warning Lights
154	Emergency Lights
155	Highway Emergency Flasher
	MAINTENANCE
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	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
182	Valve Operators
	EDUCATIONAL AIDS
191	Safety Signs
193	Employee Safety Guide
195	Changeable Letter Signs

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Safety Maintenance

formerly "SAFETY ENGINEERING"

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Cover picture by courtesy of Alleghany Ludlum Steel Corp.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

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it's SAFE to say

● FROM THE TOP DOWN

It would be encouraging to the entire safety field if we could report that all the states of the union showed a marked drop in accidents for the year that just came to a close. In most cases, final figures for 1958 have not been released as this issue of SAFETY MAINTENANCE was put to press but, in one state at least, industrial accidents have dropped to their lowest total in seventeen years.

In the first three quarters of 1958, the chairman of the Workmen's Compensation Board of New York State reported that accidents in industry totalled 483,859. Projecting that figure to the end of the year, there would be approximately 650,000 accidents, according to the Board. This figure reflects a great improvement in the safety picture in comparison with the peak year of 1951 when the industrial accident toll in New York State reached an all-time high of 861,845.

As Angela R. Parisi, chairman, warned, "our efforts toward industrial safety programs should not stop but rather, management, labor and state department safety programs should be intensified."

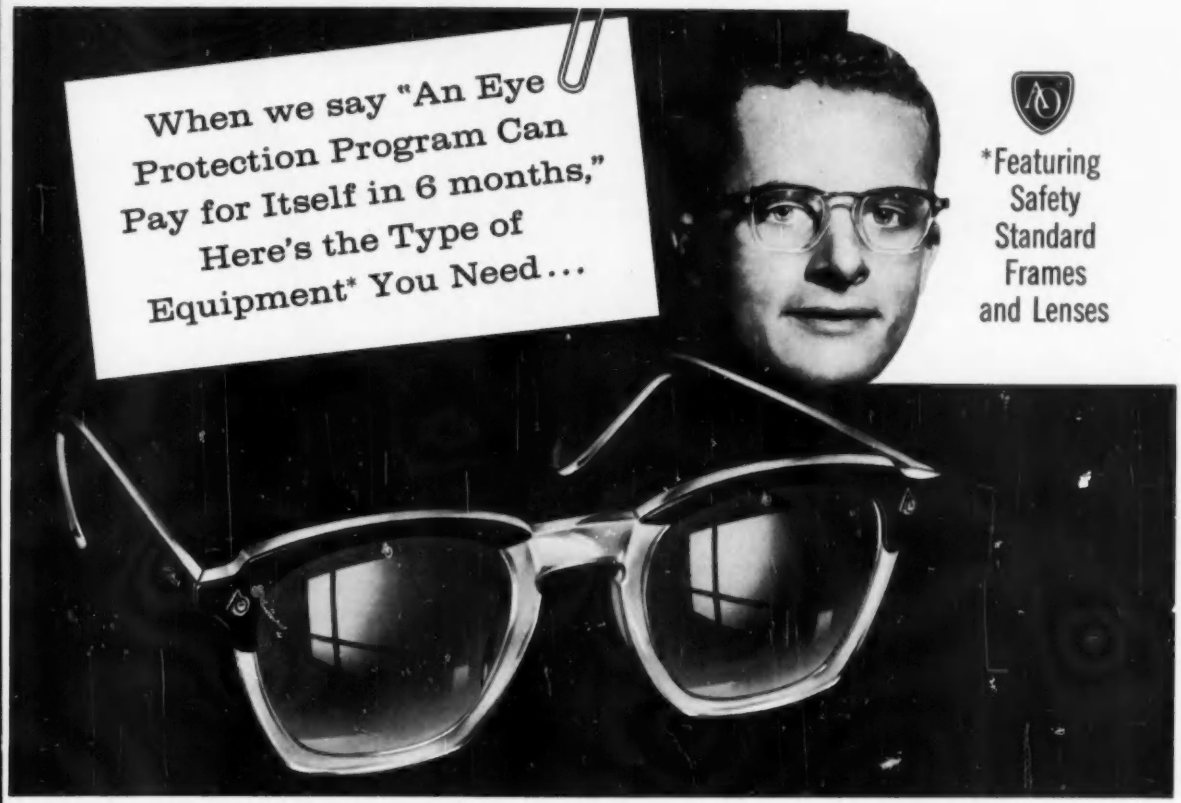
Miss Parisi recommended that the chairman of the state's Workmen's Compensation Board should be allowed to appoint a Director of Safety Education. She said that such a director, operating from the board, could be particularly helpful to smaller employers who cannot afford to hire their own safety consultants.

In too many states there is still a tendency to leave safety activity and accident prevention effort to the "big boys." Obviously, the small plant with perhaps a hundred employees will not have the same need for a full time safety engineer as there exists in a plant with a thousand workers engaged in hazardous operations of varying degree. Nevertheless, indifference to accident-causing possibilities and preventive measures in too many plants, regardless of their size, would be a national scandal if the true picture were sufficiently dramatized in our daily press.

One local safety council in a large city reports a substantial deficit in their modest operating budget, arising out of the sheer indifference on the part of the industries in their area. Another safety council has abandoned its annual safety conference for the same reason.

A fly-specked "watch your step" poster, a patently uninterested command to "look out for your eyes" or a reminder to "take it easy with that punch press" hardly can be dignified as a safety program or any effort toward reducing the nation's aggregate accident toll. Those indifferent admonitions will do nothing toward preventing a valuable employee representing a substantial investment from becoming just another human statistic.

Ironically, it is the small plant that can least afford an accident. Insurance engineers and inspectors, state labor departments and supervisory staffs and foremen are doing a good job in the main to inculcate a proper appreciation of accident prevention. But in the last analysis, it is management itself that's to blame for any lethargy. Safety effort is like enterprise, economy and every other worthwhile factor—the good example has to come from the top.


When we say "An Eye Protection Program Can Pay for Itself in 6 months," Here's the Type of Equipment* You Need...
*Featuring Safety Standard Frames and Lenses

AO F9700
2-TONE-ULTRASCOPIC SAFETY GLASSES WITH CALOBAR LENSES

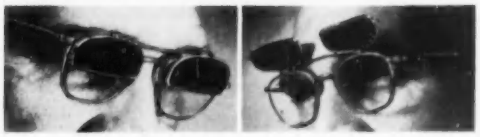
Handsome? Surely, but most important, real *quality* protection. This particular model protects against glare, heat, ultraviolet and infrared radiations as well as against impact of flying particles. Recommended for heat treating, R.R. transportation men, bus and truck drivers and other outside workers. Also available with clear safety lenses.

Our records are full of case histories showing how companies cut costs through eye protection. Want the details? Write us direct at Southbridge, Mass., or call your nearest American Optical Safety Representative.

AO 315 FOUNDRY GOGGLE

New 57.8 mm. wide vision lenses . . . double ventilation (40 mesh screen) . . . and a perfect fit over most types of spectacle glasses. *Soft* plastic mask — with leather available. Super Armorplate clear or Calobar lenses, medium, dark or extra dark. For chipping, melting, pouring, grinding etc. Also available as a dust goggle with 150 mesh screen arrangement. (Cat. #316).

NEW AO SCS-202 LIFT-FRONT ULTRASCOPIC



For open hearth furnace work and under helmet when welding. Features a half-eye metal lift-front segment, hinged to frame top. Special friction joint permits lift section to be raised and lowered repeatedly without loosening. Section is available with cobalt blue or Calobar lenses and can utilize a near point segment for welders who need corrected vision for overhead or shoulder high work.

Always insist on AO Trademarked lenses and frames

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(For details, use Key # A-2 on card on page 1)

Cleveland, Ohio *January 26–29*

Tenth Plant Maintenance & Engineering Show and Conference (Public Auditorium). Clapp & Poliak, Inc., exposition management, 341 Madison Ave., New York 17, N. Y.

Los Angeles, Calif. *February 5–6*

Ninth Annual California Statewide Meeting of the Governor's Industrial Safety Conference (Biltmore Hotel). Michael Flagg, Conference Coordinator, Dept. of Industrial Relations, 965 Mission St., Room 400, San Francisco, Calif.

Ashville, N. C. *March 1–3*

Twentieth Annual Southern Safety Conference and Exposition (Battery Park and George Vanderbilt Hotels), W. L. Groth, Executive Director, P. O. Box 8927, Richmond 25, Va.

Philadelphia, Pa. *March 4–5*

Twenty-Fifth Annual Regional Safety & Fire Conference and Exhibit (Bellevue-Stratford Hotel). Harry H. Verdier, Executive Director, Safety Council, Chamber of Commerce of Greater Philadelphia, 121 S. Broad St., Philedalphia 7, Pa.

Boston, Mass. *March 16–17*

Thirty-eighth Annual Massachusetts Safety Conference and Exhibit (Hotel Statler Hilton). Bruce Campbell, Manager, Massachusetts Safety Council, 54 Devonshire St., Boston 9, Mass.

Fort Wayne, Ind. *March 17–18*

Northeastern Indiana Safety Conference & Exhibit. Ivan A. Martin, Manager, Safety Council, Chamber of Commerce of Fort Wayne, Ft. Wayne 2, Ind.

Los Angeles, Calif. *March 23–25*

Sixth Annual Western Safety Congress & Exhibits (Ambassador Hotel). Greater Los Angeles Safety Council, 3388 W. 8th St., Los Angeles 5, Calif.

Cleveland, Ohio *April 6–10*

Nuclear Congress and Atom Fair, sponsored by International Atomic Exposition, Inc., Architects Bldg., Philadelphia 3, Pa.

Berkeley, Calif. *April 7–8*

Seventh Annual Eastbay Public Safety Congress (Hotel Claremont). Eastbay Chapter National Safety Council, 1322 Webster St., Oakland 12, Calif.

Kansas City, Mo. *April 9–10*

Fourteenth Annual Central States Safety Congress (Hotel President & Municipal Auditorium). George M. Burns, Managing Director, Kansas City Safety Council, 419 Dwight Bldg., Kansas City 5, Mo.

New York, N. Y *April 13–17*

Twenty-ninth Annual Greater New York Safety Convention and Exposition (Hotel Statler). Greater New York Safety Council, Inc., 60 East 42nd St., New York 17, N. Y.

Syracuse, N. Y. *April 20–22*

Sixth Biennial Central New York Safety Conference and Exposition (Hotel Syracuse). Newell C. Townsend, Administrative Secretary, Central New York Chapter A.S.S.E., 351 S. Warren St., Syracuse 2, N. Y.

Indianapolis, Ind. *April 22–23*

Twelfth Central Indiana Safety Conference & Exhibit (Claypool Hotel). Indianapolis Safety Council, 320 N. Meridian St., Indianapolis, Ind.

Allentown, Bethlehem, Easton, Pa. *May 4–6*

Thirty-Second Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, Secretary-Treasurer, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Niagara Falls, N. Y. *May 5–7*

Nineteenth Western New York Safety Conference (Hotel Niagara). Clifford H. Seymour, Executive Secretary, Western New York Safety Conference, P. O. Box 315, Niagara Falls, N. Y.

Roanoke, Va. *May 18–20*

Virginia Safety Association Conference (Roanoke Hotel). James T. Wadkins, Mgr., Virginia Safety Association, 2051 Monument Ave., Richmond 20, Va.

Chicago, Ill. *September 21–25*

Fourteenth Annual Instrument-Automation Conference & Exhibit, (International Amphitheatre). Fred J. Tabery, 3443 S. Hill St., Los Angeles 7, Calif.

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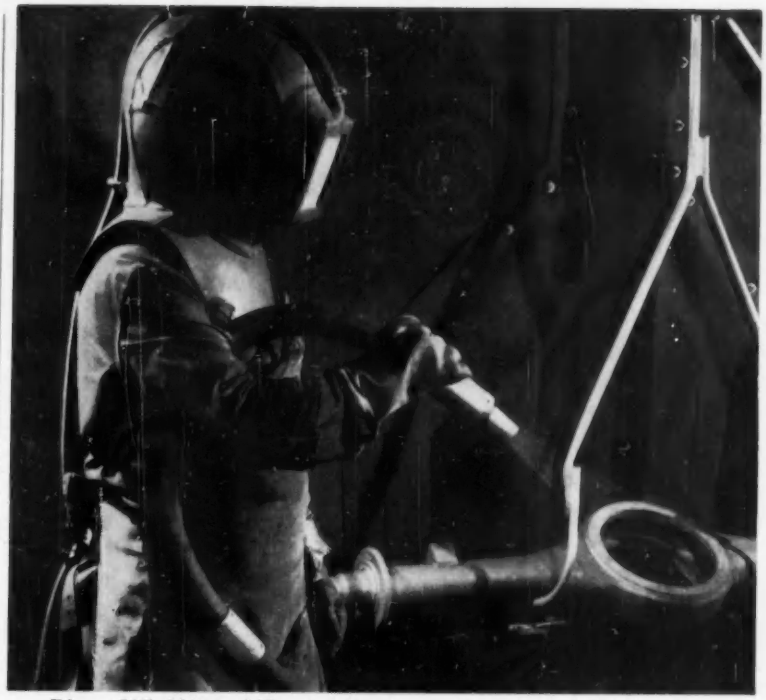
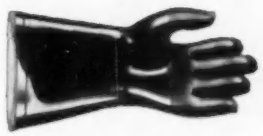
Fire Valves 61
Fire Screen Doors 63



Edmont 30% thicker red Neox (reinforced neoprene) coated Redmont gloves protect operator's hands on high pressure shot blasting jobs.

How Edmont job-fitted gloves solve hand protection problems



Redmont No. 934—6 styles

Neox No. 922—8 styles

Monkey-Grip No. 312—13 styles

Finds savings in safety

EDMONT CASE NO. 585: For handling accumulated mercury, mercury products and tramp iron particles in the amalgamation boxes of mill grinding circuit, Edmont recommended this extra heavy duty Neox (reinforced neoprene) coated glove with cured-in safety grip finish (Redmont No. 934). It wore 3 times longer than previous gloves because it resisted cutting, puncturing and snagging as well as abrasion.

Glove costs cut 85%

EDMONT CASE NO. 604: For a cadmium plating operation, Edmont recommended this Neox coated glove (No. 922) which has the toughness of neoprene but is as flexible as plastic. Adoption of the *job-fitted* glove reduced hand protection costs from 9.7 cents to 1.3 cents per man-hour.

Protects from strong solutions

EDMONT CASE NO. 611: For job of cleaning small forged parts Edmont recommended this plastic coated gauntlet (No. 312 Monkey-Grip). It protected hands from oil, strong alkaline and cyanide solutions; wore 6 shifts longer than gloves previously used. Monkey-Grips are also available with triple-thick palm coating for extreme abrasive conditions.

FREE TEST OFFER TO LISTED FIRMS: Tell us your operation, materials handled, temperature condition. From our more than 50 different types of work gloves we will recommend the glove and coating that best fit your job and send you samples for on-the-job testing.

EDMONT MANUFACTURING COMPANY
1256 Walnut Street, Coshocton, Ohio
In Canada write MSA, Toronto

Edmont

Edmont JOB-FITTED GLOVES
(For details, use Key # A-3 on card on page 1)

A painter prompted a new look

When one of our maintenance department painters was redecorating the treasurer's office, he asked about U.S. Savings Bonds. "If I could buy these Bonds on installments," he said, "and you could take my payments out before I got my paycheck, I'd hardly miss it."

Our treasurer explained that the Payroll Savings Plan does exactly that and gave the painter an application card. But the matter didn't end there, for our painter had given *us* something, too: an idea that helped to put real color into our plan.

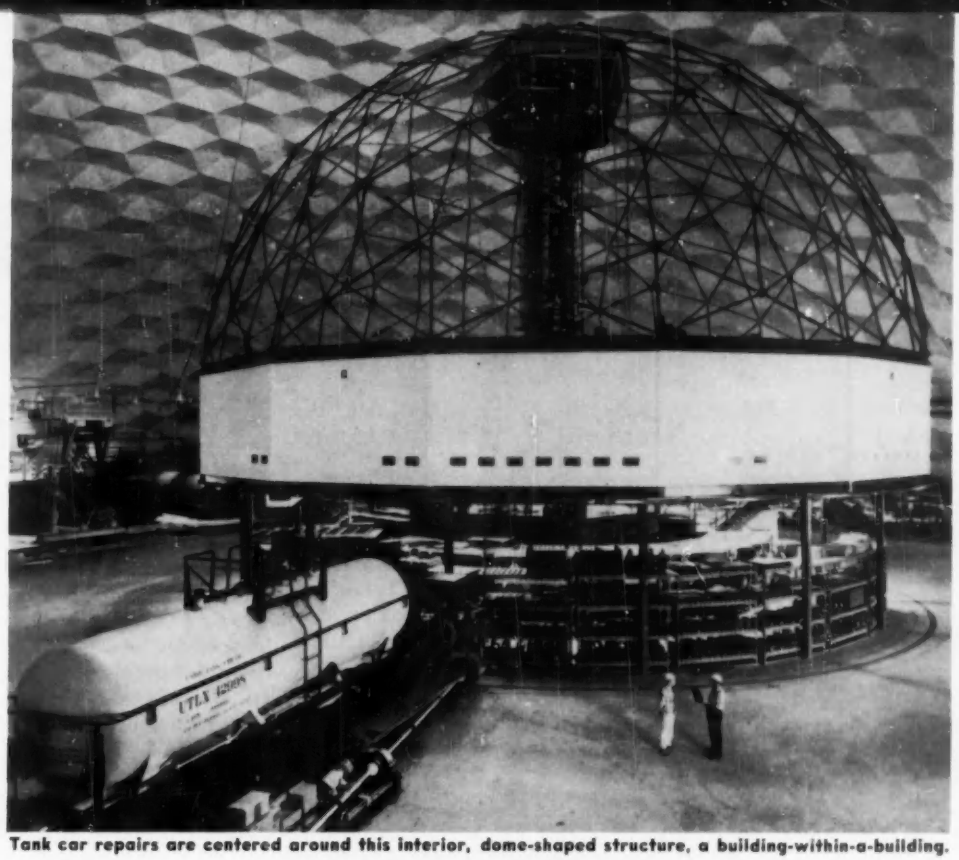
He made us realize that if he was unfamiliar with this plan, many others must be in exactly the same position.

Our State Savings Bond Director helped us pass the word. Under his direction, we set up a company-wide campaign that gave the whole Payroll Savings story to every person in the Company. Within a few days we had the best employee participation we've had since the mid-forties.

People are quick to take advantage of this sound, automatic way to save money. Today there are more payroll savers than ever before in peacetime. Look up your State Director in the phone book or write: Savings Bonds Division, U.S. Treasury Department, Washington, D.C.

SAFETY MAINTENANCE

THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR ABOVE



Tank car repairs are centered around this interior, dome-shaped structure, a building-within-a-building.

color adds SAFETY to repair building

The world's largest circular building—Union Tank Car Company's Union Dome, newly completed at Baton Rouge, La.—is also one of the most strikingly colorful buildings in the country. The exterior surface of the huge dome is painted bright yellow and appears to have a bluish haze because of the royal blue paint on its external supporting members.

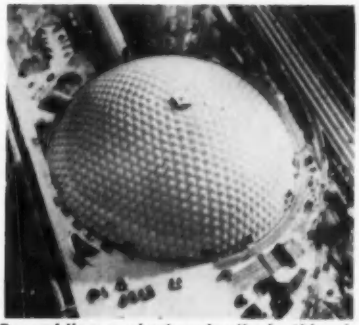
The Union Dome is 384 feet in diameter and approximately 10 stories high (120 feet). The Dome consists of 321 hexagonal steel panels welded together and strengthened by external supporting tension and compression members. The total exterior panel surface area is 154,900 square feet. It has no internal supports whatever and is big enough inside to hold a football field or baseball diamond.

The Union Dome is the first major industrial use of a geodesic dome and will serve as a regional tank car repair and maintenance plant for Union Tank. The unusual coloring will give an appearance of lightness to the huge dome, according to George Hunt, industrial designer for the Union Dome. The exterior surface of a 200 foot long connecting tunnel is painted yellow with its external supporting members a bright red. The tunnel houses facilities for painting tank cars.

(Continued on page 22)

This is aerial view of Union Dome, the world's largest circular building, at the halfway point in its construction.

Workmen scramble over exterior surface of Dome like so many ants as they apply paint. They are using yellow, royal blue.



Resembling a giant umbrella in this air view, the building is big enough to hold a football field, or big-league diamond.

electronic safety

by **MARSHALL E. KULBERG**
Safety Engineer
Semiconductor Division
Sylvania Electric Products Co., Inc.

Electronic Safety Devices may be defined as those electronic devices that are primarily designed to make an operation safer or that, although designed for another purpose, help to promote the well being of the user. This is a pretty broad definition but a few moments reflection will show that many devices that were made to improve an operation are also, in fact, safety devices. Electronics, in this instance, is defined as any device, electrical in nature, that contains or operates by virtue of non-linear active elements such as tubes and transistors. Thus, a device for controlling the firing of a boiler using a phototube would be considered electronic while a device using a thermocouple directly operating a relay would be considered electrical.

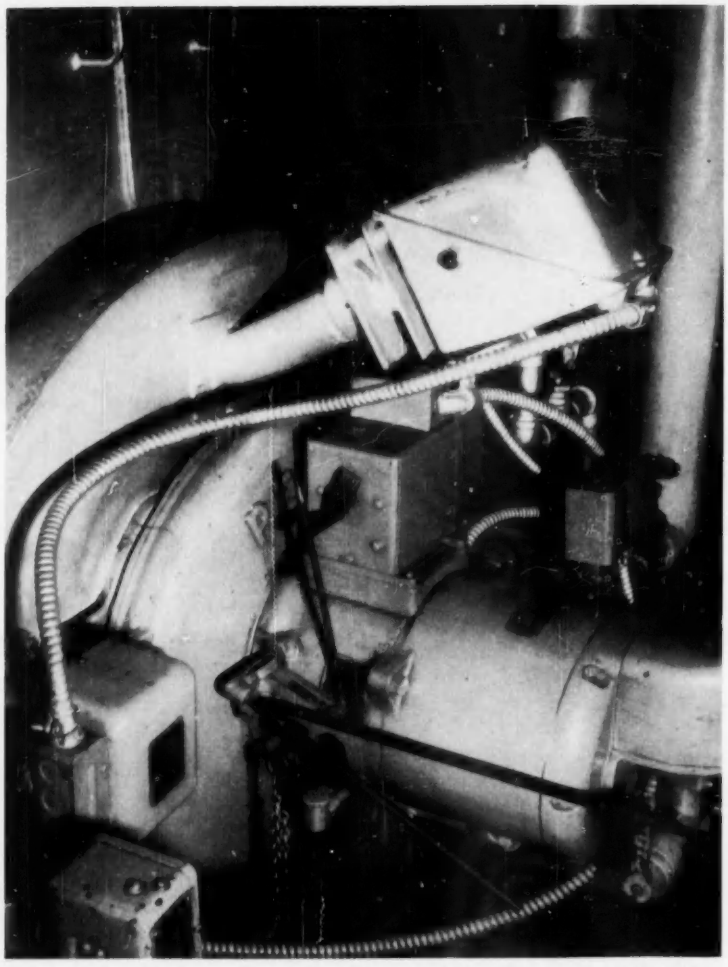


Fig. 1—Electronic Flame Detector's phototube, in housing near top of picture, focuses into fire box to monitor pilot, main flames; halt fuel if flame fails.

For convenience we have divided Electronic Safety Devices into four groups, according to the device's major function. These cover most of the devices and the field, but there are many others and with tomorrow there will be more. The four groups are summarized in Table 1.

Group I Observation

A. Closed Circuit Television

Closed circuit television systems permit the observation of processes that are in unsafe locations without exposing the observer to the hazard. These systems have been used extensively in railroad yards for the observation of freight car numbers and designations; in rocket testing areas for observation of starting characteristics; in engine test cells for the reading of meters; in chemical plants or laboratories for observation of critical process that is susceptible to violent reactions if not fully controlled. They have also been used to enable students to observe operations in hospitals. Dentists' schooling is now aided greatly by closed circuit television training. The Nautilus, on its historic North polar icecap crossing, used a closed circuit TV pointed upward to check the underside of the ice.

B. Stroboscope

An electronically controlled flashing light source enables the study of moving parts at full speed. By flashing the lamp slightly faster or slower than the speed of the object under study, a slow motion study of the equipment can be made, on

devices

Fig. 3—Press operator is protected by photocell safety device. Press will not operate when hands interrupt photoelectrical beam between the housings.

the spot, to ascertain that there are neither hazards to operators nor deformation of parts that may lead to early failure.

Group II Detectors

A. Flaw Detectors

Electronic detectors for the nondestructive detection of flaws are in use in many industries and have made the use of equipment much safer and frequently resulted in extending its useful life.

In the same manner that an echo is heard when a sound wave in air bounces off a solid surface, ultrasonic sound waves (above the range of hearing—over 20,000 cycles per second) will bounce off a discontinuity on a solid body through which they are transmitted and can be made to indicate the presence of cracks, blowholes, etc. Equipment using this principle is in constant use checking flaws:

1. In mines—detectors passed over the surface of the mine tunnel will indicate the presence of cracks or flaws that are potential sources of roof falls.
2. In crane hooks—ultrasonic detectors show the presence of sub-surface cracks that may open upon loading the hook.
3. In machine parts—the early detection of flaws enables an intelligent decision to be made as to the time when a defective piece must be taken out of service, helps prevent damage to the machine through failure, and frequently enables replacing the faulty part at the convenience of the maintenance people. Wire ropes for hoisting are checked in a different manner. When used, the grains of the wire will become generally oriented in a single direction if an external strain is applied. Then by applying a magnetic power

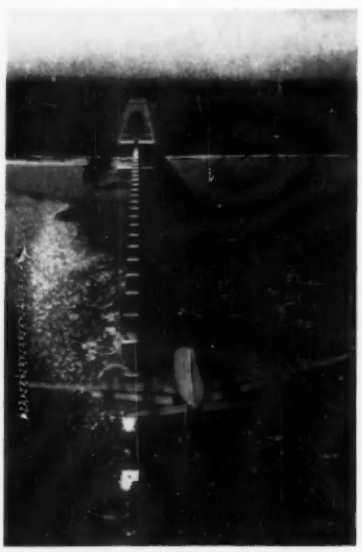


Fig. 2—Airliner passes over electronic landing safeguard. Lights begin flashing 3,000 feet before threshold of runway.

TABLE 1: Purposes of Electronic Safety Devices

Group I *Observation*

Devices to enable the operator to view processes that would otherwise be inaccessible or beyond the range of human vision.

Group II *Detection*

Devices for sensing the presence of various phenomena.

Group III *Guidance*

Devices for transmitting intelligence or information to an operator.

Group IV *Control*

Devices for controlling processes or equipment.

to the wire or by measuring magnetic flux around the wire, the strain can be located and the rope removed from service before failure takes place.

B. Foreign Bodies

Foreign bodies in food are a serious hazard to the consumer and are serious to the producer from liability and customer relations standpoints. To assure a pure clean product, the material is passed through detectors that sense the presence of any metal and other solid object, and either stop the process for hand removal of the foreign body or automatically remove the offending object.

In the production of paper, cloth, plastics, etc., the presence of metal objects would damage the equipment and may injure the operators unless removed before reaching the critical stages. For example, to eliminate this possibility all logs being fed to the pulpers in some pulp mills are passed through detectors that indicate the presence of any metal object (saw teeth, nails, wedges, etc.) and remove those logs. The detectors are electronic circuits that are upset by the presence of metal objects but are unaffected by non-metals.

C. Unbalance

As the unbalance of rotating machinery not only causes rapid wear of the machinery, but also strains the machine so that early failure is possible, rotating machinery components are frequently checked electronically for unbalance before installation. One of the easiest methods is to chalk indication numbers on the rotating part, rotate the piece, detect the unbalance, and flash a lamp at the point of maximum displacement.

This will cause the number at the point of unbalance to appear on the part while associate equipment will indicate the amount of unbalance. The part is removed from the balancer, metal is removed or added, where indicated, and the unit is rechecked. Your wheel balance on your car is an outstanding example of this.

D. Hazard Detection

Gas Detectors: Electronic detectors are used constantly in areas where the generation of explosive mixtures of gases or vapors could be disastrous. Continuously operated detectors with alarms are used in mines to guard against the presence of methane, and in chemical plants to avoid generation of any number of explosive mixtures.

Mine Detectors: Electronic mine detectors have saved many lives in war, by permitting experts to remove mines before other soldiers passed through the area.

Flame Detectors: (See Figure 1). The detection of fire is an important function that can be done very well electronically. It is important to know either that fire is present where it is required or that it is not present where its presence would be detrimental. In the first case, if the fire in a liquid or gas fired boiler is extinguished without shutting off the fuel supply, a subsequent ignition and explosion could and frequently has completely destroyed the boiler and wrecked the containing building. To avoid this, a phototube is focused into the fire box to detect the presence of the pilot flame and the main flame when the boiler is on, and to shut the unit down as soon as both flames disappear; or to prevent it from feeding fuel if the main flame does not appear within a specified time after the fuel is introduced. The circuits are arranged to shut off the boiler in the event of failure of the circuit.

In the second instance, a fire in any place where it is not wanted can be detected with a flame detector tube and caused to sound an alarm or turn on automatic extinguishing equipment.

Smoke Detector: There is an old saying that where there is smoke, there is fire. Often the presence of smoke can be used as an earlier warning of fire by passing light beams throughout the area and detecting the decrease in light received at a phototube when smoke becomes present in the room. In some instances valuable material may be destroyed by fire without flame even appearing. Such is the case of fire in a fur vault containing mink: the mink burns without flame.

E. Detection for Control

All manner of systems for control of processes or equipment can be performed rapidly and accurately with electronic sensing and controlling devices.

Liquid Level: The level of the liquid in vessels is measured without contacting the liquid by measuring its absorption of radioactivity or the distance of its surface from the top of the vessel with supersonic waves.

Liquid in Pipes: The changeover of the liquid flowing through oil pipelines from one type to another must be controlled carefully to prevent introducing more volatile liquids into stills or systems set for less dangerous material. This was previously done by running great quantities of the liquid before and after the changeover into tanks at the receiving end and relying entirely on calculations of rate flow, etc. to determine when to start the run-off. Now, by introducing a radioactive material into the liquid at the input end, the indication of the radioactivity can be detected electronically at the receiver end the changeover made safely and accurately.

Temperature: The temperature of ovens, furnaces, molten metals, and any other heated object can be accurately controlled by sighting the hot object with a phototube circuit and electronically balancing its temperature against the temperature of a set standard. The temperature controls that are thus available can be made with remarkable accuracy and can prevent the damage and possible injury that can result from overheating.

Group III—Guidance

A. Radar

Radar covers a wide range in the field of electronic safety devices from simple units that indicate the speed of an approaching automobile to units that control the operation of an aircraft. The radar speed detector used by police in some states is well known for its accuracy and for its effectiveness in cutting drivers' speeds to the limits allowed. Other radar applications include:

Navigational Radar for ships and planes at a great distance from the

fixed stations. Submarine radar . . . sound detectors . . . can hear porpoises, in addition to giving the navigator information on the area.

Ground Control Approach Systems. An operator on the ground follows the approaching aircraft on a radar screen and directs the pilot to the runway via radioed directions.

Instrument Landing Systems. Essentially the same as GCA (above) except that the pilot receives indications as to his glide path directly on in-plane instruments.

Altimeters. Equipment to indicate the distance of the aircraft above the ground by using radar equipment tied directly to an altimeter gauge.

Weather Mapping Radar Units in Aircraft. These permit the pilot to choose the smoothest course around storm areas and to be warned away from mountain peaks should the craft stray off course.

B. Strobeacon (See Figure 2.)

As the aircraft approaches the runway in foul weather, the pilot is guided to the runway by flashing white lights from a series of strobeacons. By flashing a high intensity light at frequent intervals, the murk is effectively penetrated but the light is of so short duration and so placed that it does not blind the pilot's eyes.

Group IV—Control

Electronic Safety Devices in the control grouping, in common with many other electronic safety devices not only protect against injury but improve the efficiency of the operation. The familiar photo-electric door opener has a counterpart that prevents a press or shear, etc. from operating if the operator's hands are in the danger zone.

A. Press Control (See Figure 3).

The press is set up with a light source at one side of the die opening and a light sensitive device on the other side. Whenever the operator's hands break the light beam, the press cannot start; or on clutch or hydraulic types, whenever the light beam is broken, the press stops at once. A failure of the light, photodevice or circuit will prevent press operation—it's "fail-safe."

B. Elevator Control

Automatic elevator controls that count the number of passengers waiting, dispatch cars as required, open and shut doors, level the cars at each floor are electronic devices that increase the safety and comfort of the passengers and make for more efficient operation than can be realized with manual control.

C. Traffic Control

In traffic control, traffic lights are in use that measure the flow of traffic on each intersecting road and automatically calculate the timing of the lights that will give the most rapid traffic flow.

D. Radioactivity

Electronic safety devices for the measurement and control of roadio-

(Continued on page 28)

Another Accident Checked

Safety Equipment Was Being Used Just When It Was Needed

Wearing safety hats while riding in a company truck en route to a job site near New Salem, North Dakota, probably saved the lives of at least two line crewmen of the Montana-Dakota Utilities Company. Four linemen were traveling on a gravel road in a company truck. All were wearing their electrical-type hard hats.

Suddenly the truck steering mechanism failed. The driver could do nothing to keep the heavy vehicle on the road. It hit a ditch with terrific impact and turned completely over.

"If we hadn't been wearing our safety hats," one of the crewmen said, "we could have been seriously injured."

Deep gouges and abrasions were made in the cap worn by the driver-foreman and abrasions and a two-inch-long crack were found in the hat worn by a crew-member.

Although all four men received small cuts, none were seriously injured, and there were no head injuries, which often cause death. All four men reported for work the following day.

Safety Director W. J. DuVall sums it up this way: "Although the hats worn by the men involved in this accident were not intended to be 'crash helmets,' they certainly paid-off handsomely in preventing serious head injury to these men."

Picture by courtesy of Mine Safety Appliances Co.

What's Your Lifting

Are "synthetic" ropes better than manila?
How is the safety of manila rope assured?
How can ropes for linemen be made non-conductive?
How do you inspect manila rope?

Ropes, net and tying materials are actually primitive necessities that have been used from time immemorial.

The Chinese twisted rattan and flax into cordage thousand of years ago. The Old Testament alludes to rope, and before Columbus, the Mayas and Incas employed rope. The use of flax in Europe can be traced from the prehistoric Swiss lake dwellers through Roman times, and since then flax and hemp have been used for cordage materials in all parts of the world.

It was not until a century ago, however, that the pre-eminent suitability of the hard fibres, now so universally used for cordage, began to be recognized. At about the same time, the old hand methods of rope manufacture were gradually being displaced by modern preparing and spinning machinery.

Today, Manila hemp, sisal, istle, and to a lesser extent New Zealand hemp and Mauritius hemp are the important hard fibres of commerce. There are numerous other hard fibres, however, that are employed in limited amounts for various purposes, but the aggregate quantity of all the latter constitutes a negligible portion of the total fibre consumed.

In normal years, more than 900 million pounds, or over 85 percent, of all hard fibres produced are manufactured into cordage of some description.

Safety for you and your rope are dependent upon quality, and quality is a characteristic which must be built into a rope.

Quality and safety begin with the selection of Manila Fibres and, in our opinion, the best fibre producing section of the Philippine Islands is Davao, Province of Mindanao. Here we maintain an inspection and packing plant with two resident fibre buyers.

The next step in the control of quality, and thus safety to the eventual user, is in the Government Inspection Service. The inspectors pass on samples of each shipment of fibre before it is loaded aboard vessels or lighters in the Islands.

Upon arrival at the factory, this fibre is carefully examined by experienced inspectors in order to make sure that the fibre shipped under various classifications will come up to the standards as set for mill manufacture.

In making an inspection, several bales of each grade are opened and the fibre is examined for length of fibre, handling qualities of fibres, condition of tips and butts, cleaning, strength and color classifications. The fibre is then graded out according to standards.

Manila or Abaca Fibre is derived from a species of plantain of the same family as the banana. It is classified as being of a cellulose base, and bacterial growths found in water, acids, heat may affect it. In manufacturing, this fibre is treated with various preparations so that the finished product—Manila Rope—is not seriously affected by some of these conditions particularly if the rope is given proper attention.

The principles of the rope makers art have changed very little over a period of years, but the science of treating fibre, and modern methods of handling it have made remarkable progress. In the spinning, forming and laying up of Manila Rope, the same care and control are employed as in fibre treating.

Routine inspection of Manila rope by foremen and superintendents should be part of a well rounded safety program in view of the numerous conditions which might affect the strength or usefulness of your rope on the job.

Maintaining Rope Safety

Important conditions to be looked for in the inspection would be:

***On the Surface of the Rope*:**

(a) Abrasion (broken fibres or yarns).

(b) Soft spots or general softness (this is a sure sign of badly worn rope).

(c) Decayed or burnt by a very hot substance such as paraffin or solder, also chemical burns.

(d) Cutting in or drawing down of one strand.

Internal Inspection would include:

(a) Broken fibres or yarns.

(b) Powdering in center of rope at strand axis (a sign of great strains or grit).

(c) Dry rot or mildew.

(d) Any change in color or fibre yarn or strand.

If in doubt about the condition of your rope on visual inspection, open a strand of yarn and take out several lengths of fibre. Stretch this fibre and break it across your

MATERIALS HANDLING SERIES
other articles Feb. & March

Problem?

by **EARL L. WILSON**
Columbian Rope Co.
Auburn, N. Y.

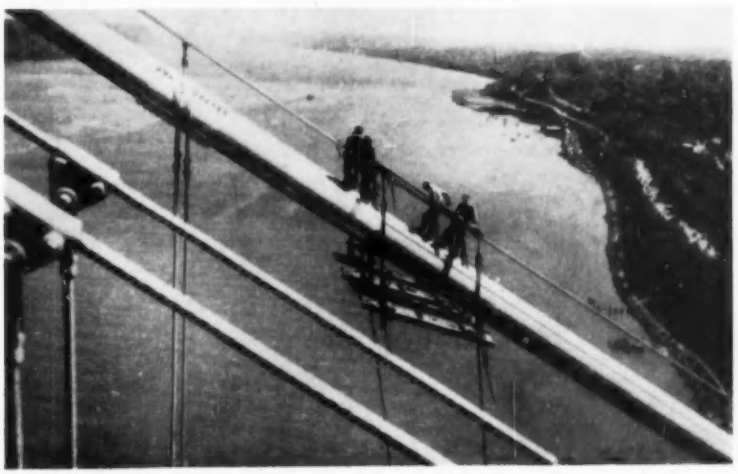
thumbnail—do the same with a fibre from new rope and note the difference. If the fibre from the used rope breaks quite easily and feels brittle and dry, the rope should be discarded.

John Y. Andrews, Director of Safety of the Niagara Mohawk Power Corp., recently outlined his company's testing of the various ropes it uses.

He said briefly: "Our linemen use rope in many of the common ways —perhaps too many to list easily. It is used in raising and lowering materials and in other rigging operations with blocks of various sizes and capacities; in pulling wire, hot line work and operating some types of switches; for hand lines, lashing, tying-off, life lines and safety ropes, etc.; it is used as protective barriers and in many other ways.

He added, "Our only, and infrequent, testing is done in our laboratory for exploratory and informational purposes. Inspection, however, is continuous and thorough. Workmen, foremen, safety personnel and other inspectors examine rope for dirt, oil, grease, drying out, roundness, discoloration, rotting, frayed strands, cuts, wear and abrasions. The surface is inspected and the strands are separated to observe obscured conditions."

"We use manila, wire and synthetic ropes," Mr. Andrews said, "our interest in synthetic rope results from some of its known characteristics, such as, mechanical strength, elasticity, dielectric strength, water-proofness, resistance to abrasion and mildew and softness in handling. All of these



properties are not advantageous under all conditions however."

It is evident that safety to life and property requires that rope be used properly and that it be well cared for.

These precautions should be observed:

(a) Under no circumstances use rope in doubtful conditions.

(b) Familiarize your men with proper methods of handling rope, with a program of definite fastenings for your various operations, and insist that these fastenings be employed. The failure of faulty knots, hitches and splices under heavy strain may cause serious accidents.

(c) Know the weight of the load, then check your rope card for the proper size of the rope to use. Don't ever overload your rope and never underestimate a load. Try to avoid sudden jerks and strains when handling a load—particularly on first-lifting.

(d) Avoid kinks and twists in the rope. Kinks greatly weaken or cause a failure in rope under moderate tension. Clear all kinks out of your rope before using it.

(e) *Blocks*

Inspect blocks for general condition each time they come in from a job—for cracked shell, misalignment of sheaves.

(Incidentally, misalignment of sheaves is more serious than you may imagine. Aside from the fact that the sheave bearing and pins sustain injury, the sheave sides may become so sharp that they will cut the rope.)

Make sure that the proper size is used in your tackle, regular charts are issued by block manufacturers giving the sizes of rope each block will accommodate.

(f) In making a length of rope fast, try to find a reasonably smooth surface on which to secure it, and take sufficient turns to properly secure your rope—do not wrap the hauling part of a working line around your hand when applying force—if this type of hand hold is necessary, throw an open hitch in the hauling part.

Lineman's Rope

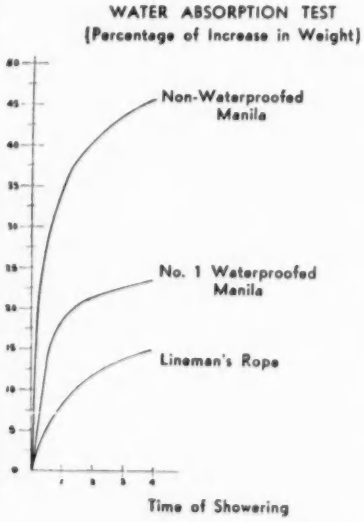
After years of research, laboratories have developed many new ropes for many and varied applications. Among them is a lineman's rope which can be used with greater safety in wet weather and is designed specifically for utility company use.

This lineman's rope shows strength equal to the standards set by the U. S. Government for regular Manila rope. In fact, it has a higher tensile strength than comparable ropes available.

When this new rope is used, it is not jeopardizing the lives of a line crew. Dry rope is a non-conductor, but becomes a conductor of electricity when wet. A rope can be deadly when wet from showers or storms. Conductivity tests on the lineman's rope have showed that it is many times safer because it repels water for a longer period of time.

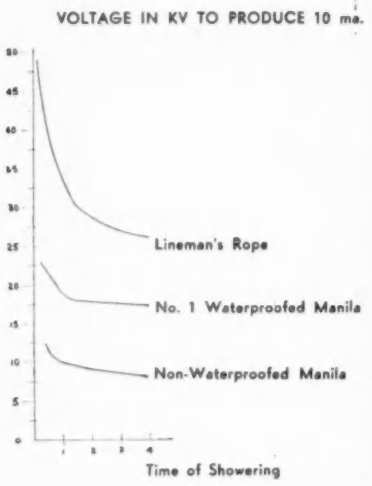
Furthermore, with a new "fungistatic" treatment, this strength is maintained, resulting in a longer, stronger life for the lineman's rope. This treatment arrests the growth of fungi, mold, mildew and bacteria which shorten the life of ordinary rope. The treated rope handles easily, wet or dry.

In tests the lineman's rope, after having been showered for four hours, still had not absorbed as much moisture as had a regular water proofed rope in less than an hour of showering.



Human tolerance to electricity varies with the individual, but is usually between 10 and 20 milliamperes. A current of 20 ma. flowing through a rope and into a man's body would probably be great enough to be dangerous, if not fatal. A wet rope, being a good conductor, could easily deliver this amount of current before "breaking down."

The accompaning graph shows the voltage required to produce a 10 ma. current in 5' lengths of ½" diameter rope.



Synthetic Ropes

Great things are expected from the synthetic fibre ropes.

Since their commercial introduction to civilian use some 10 years ago, nylon ropes have found many marine and industrial applications. The superior performance, long life, and economy that have been realized by the change to nylon rope in these fields promise even more widespread use of nylon rope in the future. The recent introduction of "dacron" polyester fibre to cordage applications has shown that this fibre has a definite place in a number of rope uses because of the strength, natural rot-and-mildew resistance, and toughness they possess.

Since they are man-made chemical fibres, nylon and "dacron" yarns are uniform in size and appearance and possess special properties. Among these special properties are:

Strength—they are among the strongest of commercial fibres.

Toughness—these fibres impart durability and unusual performance.

Uniformity—they minimize variations in rope properties.

Resistance to Rot—they are not weakened by mold or marine growth.

Excellent Appearance—the fibres are lustrous and light in color.

High Electrical Resistance—their dielectric strength is of approximately 500 volts/mil.

Easy to Process—they are handled on regular rope making equipment with ease.

Strength Comparison

These properties, and others, are best assessed in finished rope. Compared to natural fibre ropes such as manila, the advantages of nylon and "Dacron" are numerous.

Ropes of nylon are more than twice as strong as manila of equal size. Ropes of "Dacron" are approximately 90% as strong as nylon. See Table 1.

TABLE 1
TYPICAL ROPE STRENGTHS—LBS.

Size, inches Circum.	Diameter	Manila*	Nylon
5/8	3/16	450	1,000
3/4	1/4	600	1,500
1	5/16	1,000	2,500
1 1/8	3/8	1,350	3,000
1 3/8	7/16	2,250	4,500
1 1/2	1/2	2,650	5,500
2	5/8	4,400	8,400
2 1/4	3/4	5,400	11,500
2 3/4	11/16	7,700	16,000
3	1	9,000	20,000
3 1/2	1 1/8	12,000	26,000
3 3/4	1 1/4	13,500	30,000
4	1 5/16	15,000	34,000
4 1/2	1 1/2	18,500	42,000
5	1 5/8	22,500	52,000
5 1/2	1 3/4	26,500	62,000
6	2	31,000	74,000
6 1/2	2 1/8	36,000	82,000
7	2 1/4	41,000	100,000
7 1/2	2 1/2	46,500	110,000
8	2 5/8	52,000	125,000
8 1/2	2 7/8	58,000	140,000
9	3	64,000	155,000
9 1/2	3 1/8	71,000	170,000
10	3 1/4	77,000	185,000
11	3 1/2	91,000	
12	4	105,000	

*Federal Specification TR601a

TABLE 2
TYPICAL WEIGHT OF ROPES, LB. PER 100 FT.

Size, inches Circum.	Diameter	Manila	Nylon	"Dacron"
5/8	3/16	1.5	1.0	1.21
3/4	1/4	1.2	1.52	1.84
1 1/8	3/8	4.1	3.5	4.25
1 1/2	1/2	7.50	6.1	7.4
2	5/8	133	10.3	12.5
3	1	27	24.4	29.5
4 1/2	1 1/2	60.0	56.0	68
6	2	108	100.0	121.0

*Federal Specification TR601a

Replacing a manila line with one of nylon or "Dacron" of equivalent strength permits the use of a smaller, lighter line, providing easier, quicker handling. See Table 2.

Nylon is an elastic fibre with excellent recovery. "Dacron" is less elastic but also has good recovery from loads. Laboratory tests have shown that ropes of nylon will stretch under load considerably more than manila ropes of equal strength. The stretch of "Dacron" rope at working loads is about the same as manila. Wetting increases the elongation of manila under loads, but has little effect on nylon and "Dacron."

Shock Absorbency

Because of the inherent elasticity and recovery properties of nylon yarns, ropes of nylon have higher impact strength of shock absorbency than any other type of commercial cordage. The ability to absorb shock loads has been demonstrated in field tests of nylon safety lines. See Table 3.

The shock absorbency of ropes of nylon towing has been demonstrated in actual use many times.

The shock absorbency of ropes of "Dacron" has not been quantitatively determined; however, commercial use and the elongation at high loads indicate it to be superior to the impact strength of manila rope.

The synthetic ropes have other properties. Thus, nylon and "Dacron" are not materially affected by the exposure climatic temperature extremes. Service reports of the use of ropes of these fibres at extreme low temperatures have shown their performance and ease of handling to be superior to natural fibre cordage.

Nylon and "Dacron" fibres absorb little water; therefore, ropes of these fibres do not swell or become distorted, and remain easy to handle.

Furthermore, nylon and "Dacron" are not weakened by rot, mildew or marine growth on prolonged exposure to sea water. Nylon is also extremely resistant to alkalis, many solvents, and some acids; while "Dacron" has good acid and alkali resistance.

TABLE 3
FIELD TEST TO DEMONSTRATE SHOCK ABSORBENCY OF NYLON ROPE

(200 lb Weight Dropped Free and Snubbed with Rope)

Rope Type & Size *(Diameter)*	Distance Dropped Before Snubbing *(feet)*	Results
1/2" manila	4	Rope failed
3/4" manila	6	Rope failed
1/2" nylon	6	No break
1/2" nylon	9	No break
1/2" nylon *(1 strand cut)*	6	No break

Superior performance and increased durability of nylon and ropes of "Dacron" offset their higher initial cost in many uses. More important, it means greater safety.

Pictures by courtesy of Columbian Rope Co.

Car Stolen, Worker Loses Sight

Because William Jackson's car was stolen, he now has only partial vision in his left eye.

A punch press operator for Spencer-Safford Loadcraft, Augusta, Kansas, he received his crippling injury when he was struck by a steel splinter thrown by his machine.

Only the day before, someone had stolen Jackson's car—in it were the safety glasses which would have saved his sight.

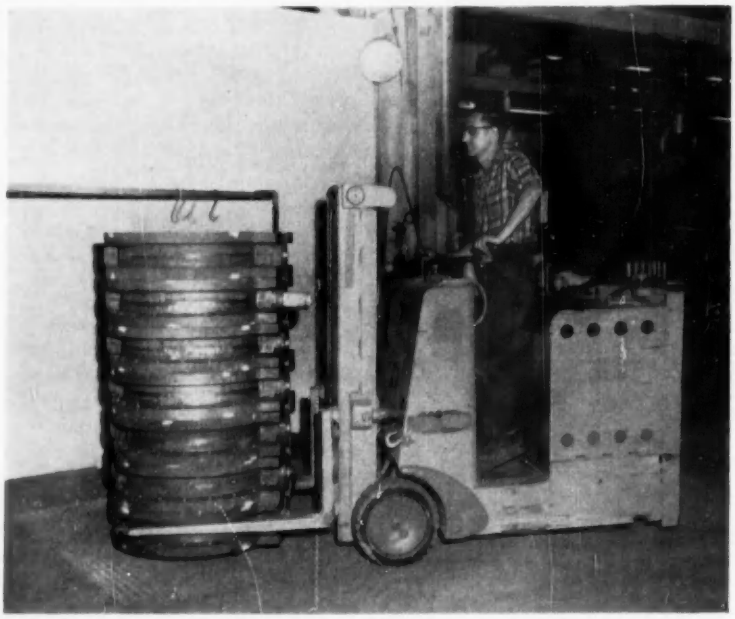
Remote Control Trucks —

PUT SAFETY ON HIGH

Well planned storage methods save 2000 square feet of space.

When B-I-F Industries, Inc., of Providence consolidated its ten parts stocking areas—three stockrooms plus seven assembly stocking sections for storage of "live" or customer order material—into a single unit about a year ago, it naturally expected that a faster, more productive operation would result. While this consolidation was just one of several similar moves in the plant, it was expected to achieve the following specific benefits:

1. More effective stock control.
2. Efficient utilization of stock room personnel and increased safety.
3. Better use of floor space in the storage area and product assembly area.
4. Centralizing of "live" order materials within the stockroom.
5. Improved dispatching of product assembly material to various areas of the plant.
6. Consolidation of product assembly areas that required related labor skills, thus effecting greater utilization of space and manpower.
7. The removal of partitions between assembly areas, allowing the "juggling" of assembly floor space to meet the variations in product dimensions.
8. The central parts stockroom would eliminate dangerous blind corners and alleys in the assembly areas.



Auxiliary duties of this electric fork-lift truck include moving butterfly valve bodies to the spray panel booth. Unit has 4,000 pound capacity.

And these benefits did result. For example, while under the old system it might have been necessary to obtain materials from more than a single storeroom, the new consolidated stockroom eliminated this nuisance.

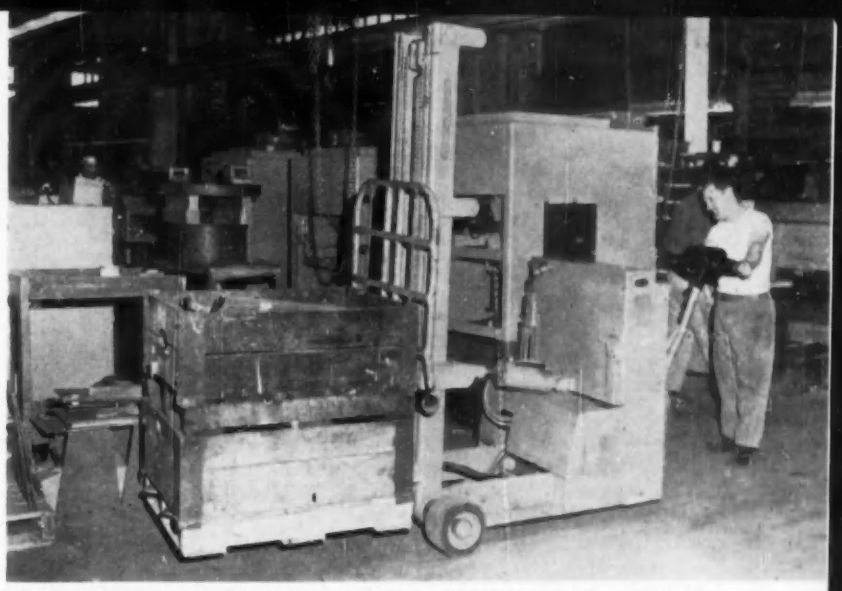
The new central stockroom also allowed B-I-F Industries to "find" some 2,000 square feet of additional space for product assembly, a 20 percent increase. As another benefit and because of the consolidation, aisle space in the product assembly area was more than cut in half, or reduced from 2,000 to 900 feet.

The new central stockroom was a part of a remodeling program in the product assembly plant. Some 23,000 different items are carried in this stockroom, and during an average working day from 250 to 325 orders are filled.

Key to the success of the new stockroom has been the use of two materials handling trucks especially designed for order picking and storing less-than-pallet-load quantities, reports the company. The trucks allow stockroom employees to ride up or down right on the platform to store or order-pick small component parts. Stock clerks no longer have to try to carry parts and at the same time maneuver dangerously up or down ladders, nor are they tempted into the even more dangerous practice of using the bins themselves as a ladder.

The trucks are electrically-powered, high-lift "walkie" vehicles normally operated from a control handle while walking along with them. Besides the standard controls in the handle, these trucks have so-called "remote controls" on the platform, enabling the operator to ride up to or down from the appropriate storage bin. Thus, the operator can control all movements,

LEVEL



Larger parts are moved in pallet boxes from the central stockroom to the assembly area by the counterbalanced "walkie" model of truck shown above.

including lifting, lowering and driving in forward or reverse, while riding on the platform.

In a typical operation, a stockroom employee might receive orders for a certain number of different parts. The man would mount the platform of the "remote control" truck. Next, he would drive his truck down the aisles, stopping at various points to raise or lower himself to the appropriate bins or shelves. As soon as he had completed his orders, he would return to a marked area for deposit of orders. Here, a fork lift truck would pick up orders and deliver them to the specified sections of the product assembly plant.

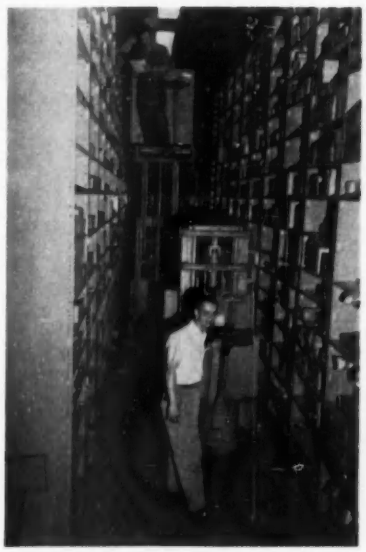
Small parts such as those handled by these trucks are stacked in steel storage bins to heights of 16 feet. The "remote control" units, of course, enable employees to reach even the highest of bins safely and consequently allow B-I-F Industries to make full utilization of available space.

Since these trucks require minimum aisle space, because normally they are loaded or unloaded from the sides, aisles in this section of the central parts stockroom are just 5½ feet wide. Actually, this is roughly 1½ feet more than required for the trucks, but the company felt the additional space would allow clearance for people walking through the aisles even when the stock trucks were at work.

Larger parts, meanwhile, are stored in another section of the stockroom. They are handled directly on pallets or in skid boxes by a high-lift counterbalanced "walkie" truck. This truck, unlike

(Continued on page 27)

Up or Down—the Truck Controls Are Always at Hand



Two "remote control" trucks comprise this tandem which can be operated as "walkie" (front) or rider-lift (rear).

Picture shows one member of tandem on way up to permit operator to deposit small parts in high storage bin.

High level bins are easily reached. All controls are located on platform, with second set on truck's handle in front.

oil-base coatings

by **W. E. FAULKNER, JR.**
Technical Editor, Sales Engineering
Esso Standard Oil Co.

There are many areas of industry in which rust prevention plays an important role, and many different rust-preventive products are marketed to meet a variety of requirements. One of the most common applications is for the temporary preservation of the machined surfaces of steel and iron. This protection is needed where there is exposure, not only to the weather, but to atmospheric moisture indoors or to contact with corrosive gases or with perspiration in handling.

Paint and metallic coatings give excellent surface protection, but their application in this particular field is limited. They are not always easy to apply, and they generally require removal before the part is placed in operation. Removal may not only be difficult, but also may damage the surface finish. Although strippable coatings, such as ethyl cellulose, are easier to remove, a disadvantage is that removal is always necessary. Strippable coatings are particularly suitable for certain small, simple replacement parts that can be dipped easily, that have no interior surfaces from which the coating cannot be readily and completely peeled, and that are to be used immediately upon removal of the coating.

Petroleum-base rust preventives have proved extremely effective in providing temporary protection for machined surfaces, particularly those subject to sliding contact. They form a flexible coating that does not crack during the expansion and contraction of the metal. The coating gives full surface protection and often does not require removal. Practically all of these rust preventives are lubricants in their own right and a. e compatible with other lubricants. If removal is necessary, however, it can be accomplished easily with mineral spirits (Stoddard Solvent). Because of differences that may exist between one manufacturer's product and another, petroleum-base rust preventives and their applications are discussed here in general terms.

Petroleum-Base Rust Preventives

The straight petroleum products formerly used for rust prevention afforded a measure of protection, but did not, by themselves, constitute a dependable moisture barrier. In those days, a certain amount of rust was often accepted as inevitable. However, the development of petroleum products compounded with special rust inhibitors has resulted in an effective means of protection.

The 50 Leading Cities in Rust Loss

RUST INDEX Years-Months	CITY
3.00	Buffalo, N. Y.
	Erie, Pa.
	Miami, Fla.
	Rochester, N. Y.
3.01	Mobile, Ala.
	New Orleans, La.
	Pensacola, Fla.
	Pittsburgh, Pa.
3.02	Baton Rouge, La.
	Lafayette, La.
	Los Angeles, Calif.
	Norfolk, Va.
	Norristown, Pa.
3.03	Atlanta, Ga.
	Atlantic City, N. J.
	Baltimore, Md.
	Cleveland, O.
	Cleveland Heights, O.
	East Cleveland, O.
	Elyria, O.
	Euclid, O.
	Houston, Tex.
	Johnstown, Pa.
	Shaker Heights, O.
	Youngstown, O.
3.04	Jacksonville, Fla.
	Portland, Ore.
	Providence, R. I.
3.05	Chicago, Ill.
	Cicero, Ill.
	Lakewood, O.
	Lewiston, Me.
	Milwaukee, Wis.
	Portland, Me.
	Seattle, Wash.
	Sharon, Pa.
	Wilkinsburg, Pa.
3.06	Bayonne, N. J.
	Bellingham, Wash.
	Galveston, Tex.
	Lackawanna, N. Y.
	Lake Charles, La.
	Lockport, N. Y.
	Manitowoc, Wis.
	Newport, R. I.
	Newport News, Va.
	New York, N. Y.
	Portsmouth, Va.
	Reading, Pa.
	Warwick, R. I.

WHAT'S YOUR

The comparative rates at which rust proceeds in different parts of the country, have been exactly established for the first time for all United States cities over 10,000 population.

It takes three years, the fastest rate in the country, for rust to corrode a standard, uncoated steel test panel, the size of an auto license plate, in four different cities—Buffalo and Rochester, N. Y.; Erie, Pa.; and Miami, Fla. Slowest rust rate, more than 15 years, is in Tucson, Ariz.; Roswell and Santa Fe, N. M. In all the nation's major industrial centers the rust rate is under four years.

This information was disclosed in the first Rust Index of the United States, published by the Rust-Oleum Corporation. The Index, the result of a 25-year research pro-

to prevent rust

A typical rust inhibitor is an oil-soluble polar material with a special affinity for the metal surface. The inhibitor wets the surface preferentially, coating it with a tenacious moisture barrier that the petroleum vehicle or base helps to hold in place. Other additives impart water-displacing, fingerprint-neutralizing, or other desirable properties. The heavier rust-preventive films themselves insulate the metal against corrosive gases, giving protection physically rather than by chemical neutralization.

Some of these modern rust preventives contain petrolatum and are too thick for direct application. They must either be preheated or thinned with solvent. If preheated, the material cools after application, leaving a durable protective film on the metal surface. With the solvent type, heating is unnecessary, and a similar film is left after evaporation of the solvent. For rust preventives that must double as lubricants, lubricating oil forms the base. Other rust preventives contain emulsifying agents so that they can be mixed with water to make them non-flammable.

Petroleum-base rust preventives fall into four general categories:

1. **Hot-dip type**
   - **A. Hard film**
   - **B. Soft film**
2. **Solvent-cutback type**
   - **A. Hard film**
   - **B. Soft film medium**
   - **C. Soft film thin**
3. **Oil type**
4. **Emulsifiable type**
   - **A. Oil film**
   - **B. Semi-solid film**

• **Hot-Dip Type:** Hot-dip rust preventives require preheating, the protective film setting up promptly upon cooling. Modifications of these products are available, however, with just enough petroleum solvent added to enable them to be brushed or swabbed without preheating. The film sets up when the solvent evaporates.

Hard film grades are recommended for outdoor storage and for packaged parts, whereas soft-film grades are used for the protection of anti-friction bearings and similar precision mechanisms during storage or shipment.

Though hot-dip rust preventives solidify rapidly, they are not hard-drying in the manner of paint. They do provide a firm, durable coating, however, that is not absorbed by the packaging material and that possesses a measure of self-healing properties.

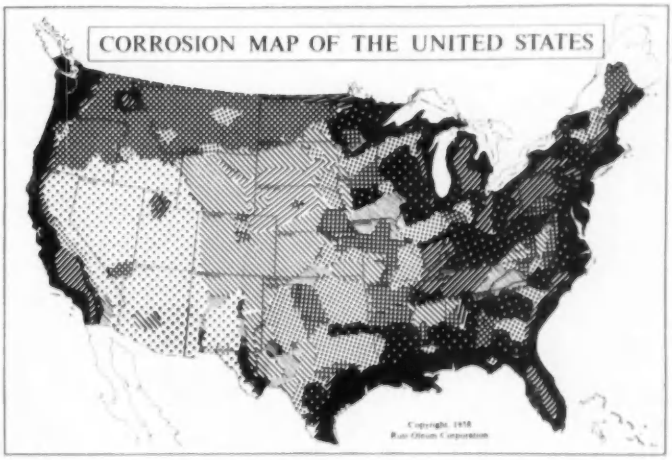
• **Solvent-Cutback Type:** Solvent-cutback preventives are solutions of rust-preventive materials in a petroleum solvent. Requiring no preheating, these products are applied as received. Though the film

RUST RATING?

gram, lists the 523 cities of the country with a population of more than 10,000 and the comparative rust rate for each city. Variations in rate result from the different amounts of rainfall, wind, corrosive gases, sunlight, and salt water present in each locality.

The rust rate is three years, one month in Pittsburgh; three years, two months in Los Angeles; three years, three months in Cleveland; three years, five months in Chicago; three years, six months in New York city; three years, eight months in Philadelphia and Detroit; three years, nine months in San Francisco; and three years, 10 months in Boston and St. Louis.

It is estimated that the nation's rust bill is currently about $7½ billion per year, an increase of $2 billion over annual toll 10 years ago.


CORROSION MAP OF THE UNITED STATES
Copyright 1958
Ruo Oleum Corporation
Legend
The number of years and months required to corrode an uncoated 28-gauge steel test panel to a severe degree
YEARS AND MONTHS COLOR CODE
3.00 – 3.11
4.00 – 4.11
5.00 – 5.11
6.00 – 6.11
7.00 – 7.11
8.00 – 8.11
9.00 – 9.11
10.00 – 14.11
15.00 +

left after evaporation of the solvent is firm, it remains flexible and somewhat tacky for long periods. Solvent-cutback rust preventives may be applied by dip, spray, brush, swab, or roller.

The hard-film type of these rust preventives are formulated primarily for outdoor protection, though they are frequently used for the protection of packaged parts.

Soft-film medium products are likewise used for the protection of packaged parts, but only for limited outdoor storage.

Soft-film thin grades are suitable for indoor protection and are widely used during manufacturing processes. They are transparent and so thin that they rarely need to be removed. Some are formulated with water-displacing agents, which remove from the metal surface any water, such as that remaining after a water rinse. The action is immediate and complete. There are also thin-film grades that contain fingerprint neutralizers which are designed to eliminate stains caused by handling prior to treatment. For greater indoor protection against abrasion, the hard- or medium-film solvent-cutback grades, which are generally nontransparent, may be used.

• **Oil Type:** Oil-type rust preventives are primarily for the protection of surfaces where inaccessibility or other considerations make the hot-dip or solvent-cutback products impractical. This applies to the interiors of internal combustion engines, hydraulic systems, gear cases, control mechanisms, actuators, and the like. For this class of machinery, the oil-type rust preventive is used—a specially fortified lubricating oil that is circulated through the machinery. Where possible, the machinery is operated briefly with the oil as a lubricant. All superfluous rust preventive then is drained. The liquid film remaining on the inner surfaces gives full protection.

With internal combustion engines, the rust-preventive oil is applied as a crankcase lubricant, and the engine is operated at an idling speed for a short period. In the case of spark-ignition engines, the rust-preventive oil is then applied to the intake manifold and upper portions of the cylinders by pouring it slowly into the carburetor air intake. This is done with the air filter removed and the engine in operation, and is continued until the engine is stalled by choking. For diesel engines, the rust-preventive oil is blended with the fuel during the last few minutes of operation to protect the interior surfaces of the injection system.

With any piston engine, small additional quantities of oil-type rust preventive should be applied through the spark-plug or injector holes as a final step. The engine then should be "turned over" a few times to assure distribution of the oil throughout the cylinder. All excess protective oil should be drained from the crankcase.

The engine may be put back in operation simply by filling the crankcase in accordance with the manufacturer's lubrication instructions. The rust-preventive oil requires no flushing. In many instances, special oil-type rust preventives are available for internal combustion engines, individual products being supplied respectively for turbines, gasoline engines, and diesel engines.

• **Emulsifiable Type:** Emulsifiable rust preventives are compounds that are emulsified with water before application. Their complete dispersion throughout the water enables the rust-preventive materials to make direct contact with the metal surface. Any water on the surface is immediately absorbed. After application, the water evaporates entirely so that it is in no way detrimental to surface protection. These products are also effective in removing fingerprints. Mixed with water, emulsifiable rust preventives are non-flammable. Dipping is the preferred method of application. Although the parts must be allowed to dry, drying time can be shortened by the application of heat.

Oil-film emulsifiable rust preventives leave an oily coating that provides excellent protection within the manufacturing plant.

The semisolid-film type is preferred, for packaged parts, since it leaves a harder coating that will not run off or wick off onto the wrapping.

Petroleum-base rust preventives, like other protective coatings, should be applied only to surfaces that are free of all dirt. A contaminated surface prevents good bonding. Except with rust preventives of the water-displacing type, moreover, the surface must be dry. Corrosion is prompted by moisture trapped beneath the film. Information on cleaning methods and materials may be obtained from concerns specializing in this field.

Removal

Petroleum-base rust preventives may be removed with mineral spirits or unleaded gasoline. Kerosene should be avoided, as the residual film tends to cause corrosion. With hard-film products, the durability of the coating is such that rubbing may also be required.

The widespread utilization of petroleum-base rust preventives for military as well as civil purposes is evidence of their effectiveness in meeting many modern industrial requirements. Properly applied, these products can help to reduce material costs, and repairs, rejects, and lost operating time.

Color Adds Safety

(from page 9)

Twelve different colors were utilized for painting the exterior, interior and equipment of the Dome and it facilities. The interior skin is painted an off-white. The various pieces of equipment are painted in contrasting colors to aid identification and to prevent accidents.

Adapting industrial safety color codes, a "high-visibility yellow" was used for all moving equipment, including cranes, with the exception of the 30-ton gantry crane which utilizes high-visibility yellow with light green for vertical structural members.

All LPG lines as well as all important valves throughout the plant are painted "alert" orange.

All fire equipment, extinguishers, etc., are in "fire-protection" red.

All electrical lines, conduits, and switchboxes, are "safety" green.

Light blue-green is used for hot water tanks, hot water lines, and steam lines; a darker blue-green for

cold water lines and maroon for cold water standpipes and pipe truss and utility stations.

The center office structure, a smaller geodesic dome within the Union Dome, is trimmed in royal blue. It houses administrative offices, employee quarters, materials storage and a Control Tower.

Union Tank Car Company is the leading supplier of tank cars serving the petroleum industry and also leases cars to rail shippers of chemicals, coal tar products, vegetable oils, liquid fertilizers and numerous other liquid products.

The circular, or radial layout at Baton Rouge is simple in design, yet solves the two major problems of conventional straight-line repair shops: (1) the great distance from materials storage areas to most repair spots; and (2) Work is slowed because the car that takes the longest to repair determines the speed of the entire repair line.

The majority of the materials used for the repair work are stored on the ground floor of the center structure in an area that encompasses 7,500 square feet and corresponds to the hub of a giant wheel. The tank cars are repaired in specialized track positions which correspond to the spokes of the wheel. This arrangement brings every area of repair track within 50 feet of the storage area and is expected to cut materials handling costs and time by a substantial percentage. Other materials and auxiliary repair shops are located around the outer perimeter of the wheel layout near the areas they serve.

The flow of tank cars in and out of the repair area is handled by a transfer table which accommodates one tank car and operates on a circular path 50 feet wide between the center structure and the car repair areas. Each car can thus be moved out immediately upon completion of the repair work and a new car brought in.

A glass-enclosed Control Tower at the top of the center structure overlooks the entire area and is the nerve-center for the repair operation. It provides visual control of all areas and has direct two-way communications with the initial inspection point as well as all tank car repair stations.

A paint tunnel 200 feet long, 10 feet wide and 20 feet high extends outward from the main dome area and covers one of the three exit tracks. Special facilities reduce the time required for "finishing" a tank car from three work days to a matter of two to three hours.

A 30-ton gantry crane, capable of lifting an entire tank car, straddles the car and heavy tank repair areas. Each of the car repair tracks has its own one-ton gantry crane for lifting work previously handled manually or with light, portable equipment. Underneath each track is a hydraulic jack pit similar to those found in automobile gas stations.

All cars are thoroughly cleaned by automatic equipment as they roll down the entrance track into the Dome for repairs. If the car is used for liquefied petroleum gas or acid, it passes through a special outside LPG area which utilizes push button controls and overhead stations for its cleaning operation in place of previous manual methods of cleaning.

A SAFETY IDEA

No Radioactive Starch in These Collars

These women at the Hanford atomic plant "hot" laundry are not ironing but using radiation counters to make sure radiation contaminants have been removed from protective clothing.

At the Hanford plant, operated by General Electric for the Atomic Energy Commission, an average of 280,000 pounds of clothing is laundered each month. This total consists of some 133,000 pounds of coveralls, 14,000 pounds of laboratory coats, 33,000 pounds of gloves, caps and shoe covers and 100,000 pounds of rubber goods and masks.

E. C. Watson, Jr., of the Hanford laboratories staff, told an AEC symposium on health protection criteria for uranium processing in New York that Hanford, at Richland, Wash., routinely processes materials equal in radioactivity to tons of uranium. To protect employees against radiation contamination, special clothing is provided those entering zones where radioactive materials are located.

Laundering and reuse of this protective clothing is necessary to make operation of the plant economical.

IMMEDIATE DELIVERY...

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ON—THE—SPOT EXPERT ANSWERS

to problems like these:

- **What is the right eye protective device for each hazard . . . when should it be worn . . . how can you select for best results and greater economy? (Did you know there are more than 45 different types of goggles, each one designed for a different hazard and use?)**
- **What are the safety and maintenance factors of specific paints . . . the importance of the Color Code and where to use red, green, white, orange and even purple . . . who specializes in such paints?**
- **What are the most economical types of materials handling equipment for you?**
- **What is the importance of a uniform code for safety signs and signals . . . where can you find materials which will fit a planned program?**
- **What are the essentials for hand soaps and cleansers to protect the skin . . . the types of protective creams to prevent skin rash?**
- **What are the various types of electrical equipment approved by the Underwriters' Laboratories for specific conditions of hazardous gases, vapors and dusts . . . who makes them?**
- **What are the vapor hazards of flammable liquids . . . what fire prevention containers and equipment will do exactly the right job?**
- **What is the range of protective clothing, such as 70 different types of protective gloves . . . the specific merits and uses of each one—which is the very best for you?**
- **What can you save in time, money and production by selecting the right ladder for an operation?**
- **When will awards and placques speed up production?**

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Edited by HENRY M. GROSMAN
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NEGLIGENCE—Assumption of Risk

Where an accident occurred in connection with defects in machinery which were known by the employer who negligently handled the machinery, the employee was entitled to damages for his injuries. During a stack moving operation, the employer, who was operating the tractor, was asked by the employee to release the power from the mover. The employer became confused and instead of stopping the operation by throwing in the clutch, attempted to shut off the motor of the tractor by pushing a defective switch. Although he did not operate the machine as frequently as his employees did, he was familiar with its operation and knew of the defect. The employee was injured when he attempted to help the employer stop the stack mover's operation and slipped under a shield into the power take-off. The court held that the evidence was insufficient to show that the employee assumed the risk because the condition of the machinery did not constitute a risk to him until the employer's negligence made it so. The court noted that an employee in the course of his employment can be confronted with a risk of which he had no previous knowledge, such as his employer's negligence. Hence, there is no opportunity for the employee to make an intelligent choice between quitting and continuing in the service of his employer. In this situation, there can be no voluntary acceptance or assumption of risk. Affirmed.

Bartlett v. Gregg; South Dakota Supreme Court. No. 9695-a-HB. October 29, 1958.

THIRD-PARTY ACTION—Negligence—Question of Fact

Where there was evidence that an employee of the defendant company stacked a load of cinder blocks too high upon an uneven foundation, the court ruled that the defendant was not entitled to a directed verdict. The evidence showed that an employee, engaged in constructing a house, was injured when cinder blocks piled by the defendant's employee toppled over. The injured workman testified that after he was injured, and while lying on the ground, he observed that some of the planks used to support the blocks had collapsed and that others were on uneven ground. The evidence further showed that the blocks were piled higher than was customary. The court ruled that a question of fact was raised as to whether the defendant's employee was negligent in piling the blocks as he did and that the trial court erred in granting the defendant's motion for a directed verdict. The court also held that, since the planks were uneven on the date of the accident, it would not have been unreasonable for a jury to infer that they were uneven four days earlier when the defendant's employee piled them. Reversed and remanded.

Henderson v. William Moors Concrete Products, Inc.; Michigan Supreme Court. Sept. 9, 1958.

DAMAGES—Negligence—Common Law Action

An employee was entitled to recover damages for personal injuries she sustained due to the negligent operation of her employer's truck. The employee, at her employer's request, stood on a runningboard of a truck to balance it while her employer prepared to drive it out of a gully. She was thrown off the truck when it moved forward and sustained hip injuries. The court held that the evidence did not show that the plaintiff was an "employee" while standing upon the runningboard of the truck because she was not required to do so under her contract of employment even if transportation to and from the cotton field was included in the contract. The court could not say as a matter of law that the plaintiff was more negligent than the defendant or that her negligence was so great as to bar her recovery. Affirmed.

Bramlett v. Hulsey; Georgia Court of Appeals. No. 37167. July 16, 1958.

CAUSAL CONNECTION—Dermatitis and Cataracts—Medical Testimony

A finding that contact dermatitis did not cause cataracts of the eyes was substantially supported by the evidence. The evidence showed that the claimant was employed by a chicken processing company to remove feathers from chickens after they had passed through a vat of chemically treated water. The claimant alleged that in the course of his employment he

became wet with this solution causing an irritation to his hands, legs, face and eyes and producing contact dermatitis. He further contended that the dermatitis caused the formation of cataracts upon both his eyes. The testimony of attending physicians and experts indicated that there could be no causal relation between the dermatitis and the cataracts. Evidence was introduced as to the claimant's poor eyesight prior to working for the defendant-employer. There was further evidence that the claimant was an excessive and habitual user of alcohol and that the excessive use of alcohol tended to produce cataracts. From this evidence the court held that the claimant had not sustained the burden of proving that the cataracts were caused by his employment. Affirmed.

Sullivan v. C. & S. Poultry Co., Inc.; Mississippi Supreme Court. No. 40,862. October 13, 1958.

Remote Control Trucks

(from page 19)

the other two "walkies," has no "remote control" on the carriage. A feature of this truck, and the main reason it was selected, is that it is capable of handling all types of pallets and skids. It could well be called a "junior" fork lift truck.

When the larger parts are required at the assembly area, this counterbalanced stacker removes them from storage racks and transports them to their appropriate destination.

Dual-Capacity Unit

The rider-type fork lift used to transport smaller parts from the stockroom to the assembly area is a dual-capacity unit. It has a quickly detachable counterweight at its rear. With the counterweight attached the truck has a 4000-pound capacity, and without it the capacity is 2000-pounds.

Because of this feature, B-I-F Industries can use the truck as a 4000-pound vehicle where desirable, as for example in carrying out in-plant handling chores. Yet, when the same truck is required to load outgoing highway trucks, the counterweight can be removed and the fork lift can enter directly into the body of the highway truck to deposit its loads. Consequently, considerable time is saved in the loading of outgoing goods.

But the main benefits have been achieved in the new central parts stockroom. B-I-F Industries, which manufactures meters, feeders and controls, has found and applied the formula for achieving successful and safer stockroom operations—utilization of equipment especially suited to such operations plus a systematic approach that leaves little room for off-the-floor materials handling accidents.

Pictures by courtesy of Lewis-Shepard Products, Inc.

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Electronic Safety Devices
(from page 13)

activity is a large field that has not yet been mentioned. Radioactivity cannot be sensed by any of the human senses, and its presence can be determined only by a few special devices, photographic films and electronic devices primarily. The Atomic Energy Commission has made an excellent record as thousands of persons have worked with these strange materials with very few injuries. Much of the credit may be given to the electronic safety devices that are used in detecting the presence of the radiation and to the excellent training given to all employees. The atomic piles are continuously monitored and control rods are inserted or removed automatically to limit the operation conditions to levels that will not go off with a bang. High level work is all performed remotely by operators that watch the process through telescopes or closed TV circuits. The lower levels of operation, however, require operator control, and only through careful monitoring of every step of the processes can work be carried on without endangering the operator.

Conclusion

Where do we go from here? The limits are far beyond our own imagination for as we advance the horizon moves further away. However, some new item appears almost daily that will be common in the future. The military SAGE (Semi Atomic Ground Environment) control system is designed to guide intercepter planes to attacking planes and to automatically guide them to the attackers regardless of evasive tactics. On a more constructive level, such a system could control the movement of all aircraft in a given area, say the entire United States or the North American continent, and eliminate one serious cause of mid-air collisions; that is, two planes unknowingly being in the same place at the same time.

Not long ago, one of the motor vehicle companies published an advertisement showing automobiles moving on superhighways with no one at the wheel. Their system consisted of cables in the pavement emitting a signal that controlled the vehicle's speed and direction. Additional safeguards would be provided to prevent two vehicles running together should a mechanical failure or lack of fuel stall one of the cars. Driving on other roads would be done in the conventional manner. Such a system would eliminate the hazard due to inattentiveness that so easily arises while driving at high speed on our modern highways. The use of the object detecting device mentioned before would continue on conventional highways to minimize rear end and other collisions.

From an address presented at the 46th National Safety Congress. Pictures by courtesy of Sylvania Electric Products Co., Inc.

Sanitation Conference

The third annual Industrial & Building Sanitation Maintenance Show & Conference, which was sponsored by the Institute of Sanitation Management (ISM), ran from November 3–6, with concurrent technical panel sessions.

Held in New York City, the conference's opening session was on "Concepts of Sanitation Management." Chairman was J. Lloyd Barron, president of ISM. An official "welcome to New York" was extended by Jerome B. Trichter, Assistant Commissioner of Environmental Sanitation, New York City Health Department, who also spoke on "Expanding Horizons of Sanitation Management."

Also on the program was Roy W. Peet, manager of the Association of American Soap & Glycerine Producers, Inc., which has actively supported the activities of ISM since its inception. Mr. Peet outlined briefly the ways in which his organization has worked with ISM, including the furnishing of featured speakers for various regional meetings held throughout the year by the Institute. Two such Soap Association-sponsored speakers were among those addressing the session also: H. Hamilton Weber, vice president of Empire State Building Corporation, and Albert Bischof, safety director of Celanese Corporation of America, Newark, N. J. Their topics were respectively: "The Sanitation Responsibility of Office Building Management," and "The Importance of Cleanliness, Order and Safety in the Work Place."

Concluding the opening session were an address by Fred J. Ambellan, Superintendent of Schools, Levittown, Long Island, on "The Management of Cleanliness in the Modern School System," and a summation by chairman Barron on "The Integration of Industrial Sanitation."

A panel discussion was held on the topic "How We Got Where We Are in Sanitation Maintenance." Albert J. Burner, Supervisor of Cleaning Standards, Port of New York Authority, was chairman.

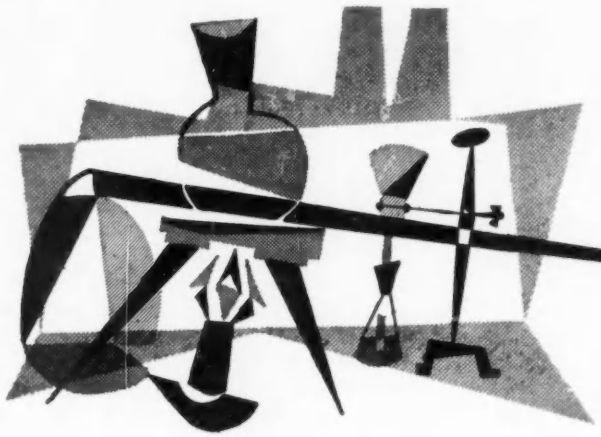
Among the concurrent panel discussions was one entitled "Practical Sanitizing in the Clean-up."

Another panel of especial importance was held on "Modern Floor Cleaning." Paul Kaparoff, of American Airlines, LaGuardia Field, New York, N. Y., spoke on the "Application of IBM Equipment for Planning and Scheduling Floor Maintenance." He described how America's use of ISM equipment deals with the routinization of floor maintenance in the quickest and most efficient way possible. Under the system, every work area at American's headquarters is coded on IBM cards, noting type of floor construction, number of square feet to be cared for, etc.

Lighting Exposition

Harold R. Meyer, president of the National Lighting Exposition, has announced the second all-industry show at New York's Coliseum March 1–4. With over 160 commercial exhibits already enrolled with most of them displaying new products for the first time and numerous educational features planned, the 2nd National Lighting Exposition promises to be highly informative.

With "New Dimensions for the Foot Candle" as its theme, the Exposition will be opened by George J. Taylor, president of the Illuminating Engineering Society, who will deliver the key-note address. Fourteen panel discussions on the subject of lighting with authorities drawn from all facets of this ever-growing industry have been booked for the four days of the show.



industrial hygiene

Industrial Hygienists Control Air Around Us

Isotopes and X-ray equipment used to test and measure steel offer the latest of many challenges to the industry's relatively new science of industrial hygiene, which in the past 20 years has eliminated most of the elements in the air of steel mills which formerly presented a potential danger to employees' health.

Dr. Allen D. Brandt, one of the nation's foremost industrial hygienists, said in an interview with "Steelways" that members of this budding science, which deals with the air an employee breathes as well as his physical environment, have licked most of the old problems such as dust, air pollution and noise that were prevalent in steel mills.

He told the official publication of American Iron and Steel Institute that creation of new developments and products, such as the first nuclear cruiser, however, has kept the industrial hygienists on the jump. He said their job will never be over and added:

"Research, metallurgy and the engineers, as well as the designers, are coming up with new products made at an increasingly rapid rate in new ways in new environments. We have to know what it is—so as to control it and thereby prevent an adverse effect upon the people exposed to it, whether they're in the plant or the surrounding community."

Lung Disease Control

A group of international experts at the International Labor Office have completed an "International Classification of Persistent Radiological Opacities in the Lung Fields Provoked by the Inhalation of Mineral Dust."

This represents one aspect of the ILO's battle over several years against pneumoconiosis, a disease which attacks workers liable to breathe excessive dust in the course of their work.

The importance of early diagnosis in achieving prevention was recognized by all the experts and one of the aims of the classification was to facilitate the early diagnosis of the disease before the health of the worker is affected or his future jeopardized.

During their work in the ILO the experts examined several hundred films, pre-selected as the most typical, illustrating the qualitative and quantitative features of the radiographic appearances of the pneumoconioses and the different appearances they could have in different industries and according to the nature of the dusts involved.

They decided to establish a set of standard films illustrating the characteristic appearances of the middle stage of each category of pneumoconiosis. The experts recommended that the ILO should attach to the classification a set of reproductions of standard films and should give the widest possible publicity to this illustrated classification.

New AEC Rules for Handling Nuclear Material

The Atomic Energy Commission has amended its special nuclear material regulation to provide that licensees authorized to possess fissionable material in amounts which could produce conditions of accidental criticality shall maintain adequate alarm systems and emergency plans to evacuate personnel.

Licensees subject to the requirement are those authorized to possess more than 500 grams of contained uranium 235, 300 grams of plutonium, or 300 grams of uranium 233.

Most of the more than 200 special nuclear material licenses issued by the Commission authorize possession and use only of small quantities of material, principally for research and development purposes. Hence they are not affected by the amendment. The amendment applies to licensees such as fuel element fabricators, reprocessors of enriched scrap, and converters of uranium hexafluoride to oxide and metal. These operations require the possession and use of sizable amounts of special nuclear material. Under such conditions it is possible, though unlikely, that enough material might be brought together accidentally to cause criticality, with a consequent release of radioactivity into the working area.

All affected licensees must maintain monitoring systems which will detect rises in radiation levels and automatically set off alarm signals. They must establish adequate emergency procedures for evacuating personnel to safety areas, and must insure, through practice drills and other means, that employees are currently familiar with the evacuation plan.

Description of Plans

Applicants for new licenses authorizing possession and use of special nuclear material in amounts above the limits prescribed in the amendment are to include in their applications descriptions of their plans for meeting the requirements of the amended regulation. Existing licensees subject to the requirements are directed to file plans for compliance within 30 days from the effective date of the regulation.

The requirements are established by amendment of Title 10 Code of Federal Regulations, Part 70—SPECIAL NUCLEAR MATERIAL. The amendment was published in the Federal Register on November 11, 1958, and became effective upon publication.

Radiation Safety in Industry

Private industry using radiation sources can match the outstanding worker-safety record maintained by the Atomic Energy Commission, William A. McAdams, radiation consultant for General Electric in Schenectady told several hundred participants at the N. Y. Governor's Conference on Occupational Health and Safety recently.

Speaking at the "Industrial Environment" panel, Mr. McAdams cited a recent study of 72 General Electric plants using radioactive materials which indicates that their safety record compares favorably to the "splendid" worker-protection record of the A.E.C.

During recent years, radiation and radioactive materials have begun to play a vital role in the development and improvement of commercial products and in the simplification and control of manufacturing processes. Thousands of industrial plants all over the United States are now engaged in radiation work of one kind or another. It is clear that the continued and expanded use of radiation in industry will depend, to a considerable extent, on the ability to control the hazards involved.

According to reports of the Atomic Energy Commission, the radiation safety record in facilities owned and operated by the AEC and its contractors, has been a splendid one. This record offers tangible proof that radiation work can be carried out in a satisfactory manner with little risk to workers or the public.

The recent study of 72 highly diversified and decentralized plants of the General Electric Company indicates that a similar high standard of protection has been achieved by private industry working with radiation sources not under control of the AEC. Nevertheless, all radiation users must continue to give attention to radiation hazards and provide facilities which will reduce the exposure of employees and the general public to the lowest practicable level.

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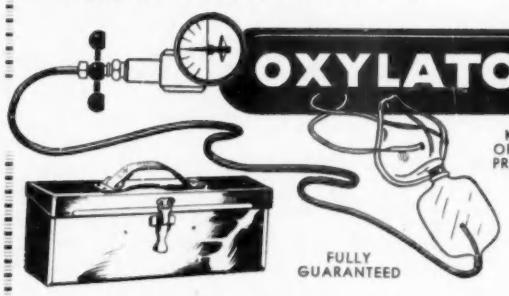

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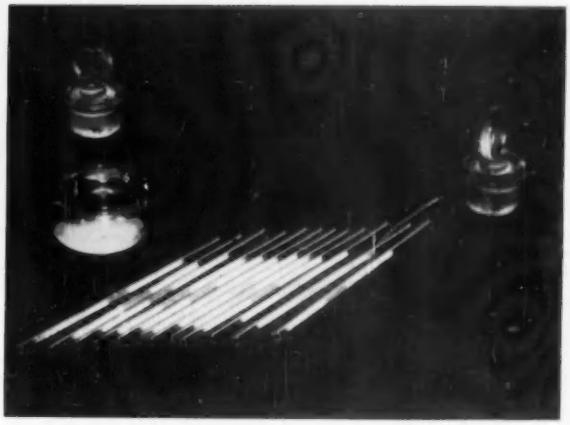
NEW METHOD OF DETECTING ACETYLENE

Scientist sets up portable equipment used to detect acetylene in air. Even small amounts can be detected.



Visual samples are collected on silica gel, treated with reagent solutions (l. and r.) compared with samples (center).

A **rapid**, accurate, colorimetric method for detecting and measuring minute quantities of acetylene in air has been developed by the National Bureau of Standards in cooperation with the U. S. Public Health Service. Since acetylene in the air is associated with the contaminants from automobile exhaust gases, the method is expected to be useful in the study and monitoring of urban air pollution. The process,[1] developed by E. E. Hughes and R. Gorden, Jr., of the Bureau's gas analysis laboratory, permits detection of acetylene concentrations as low as 10 parts per billion. The equipment required is simple and portable, so that the method is well suited for field studies.

First Step in Procedure

The first step in the procedure is to concentrate a measurable amount of the dispersed acetylene by adsorption on silica gel. The quantity of acetylene present is indicated by the depth of color produced when the silica gel surface is treated with a solution of ammoniacal cuprous chloride. Then the exact concentration is determined by visually comparing this color with those produced by gas samples containing known concentrations of acetylene.

A normal urban atmosphere contains a wide variety of gaseous inorganic and organic contaminants. These come mainly from industrial processes and vehicles—the internal combustion engine is a major source of the organic contaminants. Although the quantities of water vapor and oxides of nitrogen and carbon in exhaust gases have been determined, the organic fraction of "traffic gas" has never been completely analyzed. This remainder contains numerous hydrocarbons whose individual concentrations are too low for quantitative detection by previously available methods. The development of rapid procedures for the qualitative or quantitative determination of such substances has become of great importance for the early detection of changes in pollution patterns of certain areas. In particular, the analysis of certain substances—such as acetylene—which have been found in relatively constant concentrations in traffic gas, serves as a simple and practical means of determining the degree of contamination.

Has Other Applications

Besides its use in the study of air pollution, this method can be applied to other industrial or laboratory processes requiring the determination and fractionation of air constituents. For example, accumulation of solid acetylene in liquid air generators has caused numerous costly and dangerous accidents. Although the permissible level of acetylene in the intake air is quite low, it can easily be detected by this procedure.

1 For further technical information, see "A simple method for the determination of acetylene in air in concentrations from one part per million to ten parts per million" by E. E. Hughes and R. Gorden, Jr., Anal. Chem. (in press).

To begin the determination, a definite volume of air contaminated with the acetylene is drawn through a long, small-diameter glass tube containing highly purified silica gel. As the air sample passes through the tube, which has been cooled to the temperature of dry ice, acetylene is adsorbed on the gel's surface. A column of fine glass beads bounds the gel layer at each end of the tube, making possible easier detection of slight color changes. Because the acetylene collects mainly on the initial portion of the gel, the tube is allowed to warm to room temperature for a short time to obtain a homogeneous distribution. An ammoniacal solution of cuprous chloride—obtained by mixing a solution of ammoniacal cupric chloride with hydroxylamine hydrochloride—is then introduced into the tube and the copper acetylide formed precipitates directly on the gel surface. The resulting color ranges from pink to brown, depending on the quantity of acetylene.

When the concentration of acetylene in the atmosphere is 10 ppm or above, detectable quantities can be adsorbed at room temperature. At concentrations below 10 ppm, the gel must be cooled to −78°C, the temperature of dry ice. Because of increased adsorption at this temperature, it has been possible to detect concentrations as low as 10 parts per billion.

The concentration of acetylene in the unknown air sample is determined by comparing the color of the unknown with that of a tube exposed to a sample of known concentration. Mixtures of acetylene and air for the comparison samples are made by successive dilution of a single gas mixture containing 1 percent acetylene.

Acetylene collected in the field can either be treated with the reagent immediately, or stored at a reduced temperature in liquid nitrogen and then returned to the laboratory for analysis. The final analysis does not have to be made immediately, because the collected acetylene which has been treated with the cuprous chloride solution can be stored for at least 48 hours without apparent loss of color.

In general, experiments indicate that this method can identifiy total adsorbed quantities of acetylene as low as 0.01 ug contained in 12 ml of air at a volume concentration of 1 ppm. To detect an equal amount of acetylene at a concentration of 0.1 ppm, it was only necessary to sample a volume of air ten times greater. Differences of 0.012 ug between specimens of acetylene were easily observed in the range of 0.00 to 0.237 ug.

New Officers Selected for Industrial Hygiene Foundation

The Board of Trustees of the Industrial Hygiene Foundation announced at the 23rd Annual Meeting the election of Dr. William P. Yant, Director of Research and Development at Mine Safety Appliances Company, as Chairman, Board of Trustees; and the appointment of Dr. H. H. Schrenk, Research Director of the Foundation since 1949, as Managing Director to succeed Dr. C. Richard Walmer, who is returning to private medical practice.

Both Dr. Yant and Dr. Schrenk are widely experienced in the fields of industrial and public health. Dr. Schrenk directed the Donora smog investigation for the U. S. Public Health Service, and is a recipient of the Donald E. Cummings Memorial Award from the American Industrial Hygiene Association for outstanding contributions to his profession.

Dr. Yant recently received the Arthur Williams Medal of the American Museum of Safety for "outstanding contribution to the conservation of human life." During his long career, devoted to the improvement of health and safety, Dr. Yant has made inventions covered by 66 domestic and foreign patents.

Served as Trustee

Dr. Yant participated in the formation of Industrial Hygiene Foundation and has served as a trustee since its inception. The Foundation, established at Mellon Institute in 1935, is a nonprofit research organization of about 400 companies and industrial associations. Its purpose is to improve health conditions in industry, a program involving a staff of physicians, chemists, engineers, biochemists, and medical technicians, all specialists in industrial health problems.

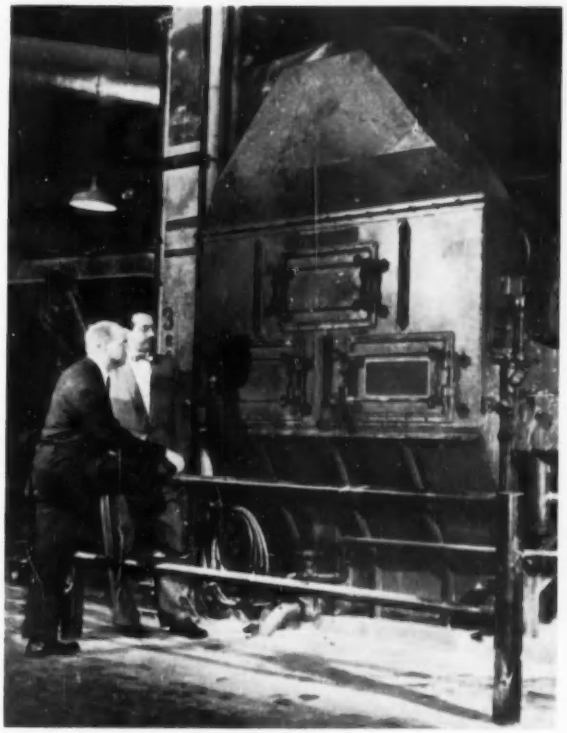
Dr. Schrenk, the Foundation's new Managing Director, received his undergraduate and graduate training at the University of Wisconsin and was the Assistant Toxicologist of the State of Wisconsin from 1923 to 1928. From 1928 to 1948, he was associated with the U. S. Bureau of Mines, where he was Chief of the Health Branch. Following this he joined the U. S. Public Health Service as Chief of the Environmental Investigations Branch in the Industrial Hygiene Division.

Held Directorship, Presidency

Dr. Schrenk has served as Director and President of the American Industrial Hygiene Association; Chairman of Pittsburgh Section and Councilor of the American Chemical Society; Chairman, Industrial Hygiene Section of the American Public Health Association; and President of the Pittsburgh Chemists' Club. He is the author of more than 100 papers dealing with industrial hygiene subjects and has served on numerous committees of professional and governmental organizations.

Dr. Yant has been Chairman of Pittsburgh Section and Councilor of the American Chemical Society; the first President of the American Industrial Hygiene Association; President of the American Society of Safety Engineers; and Director of the National Safety Council. In addition to the Arthur Williams Medal, he has received the Pittsburgh Award and the Donald E. Cummings Memorial Award. He has been active in committees of many organizations, including the American Standards Association, National Research Council, American Medical Association, and American Society for Testing Materials.

Wet Collector Removes Volatile Dust



All of the volatile overspray and dust is collected in the self-contained wet dust collector shown in the above picture.

A **gasoline base** lubricant created a volatile dust hazard at the Akron, Ohio, plant of the General Tire and Rubber Company. In the manufacture of automobile and truck tires a lubricant is made of soapstone and mica suspended in gasoline and sprayed onto the tires. Applied to prevent sticking during subsequent handling operations, the lubricant is particularly important at the time the tire is placed in the molds and vulcanized into a finished tire.

A 10.00-24 L.C.M. truck tire is sprayed with fine soapstone-mica lubricant after forming application to prevent sticking.

The problem of effectively collecting the volatile gasoline dust has been solved by the installation of a self-contained wet dust collector. In addition, plant housekeeping costs have been reduced materially and exterior dust leaks have been eliminated.

After the forming process green tires move on roller conveyors to a spray station where the lubricant is applied. Two fixed spray guns apply the lubricant to the exterior of the tire rotated by a pair of electrically driven rollers. A spray operator uses a hand gun to coat the inside of the tire. A baffled hood draws overspray to the back and top of the station and directs the dust laden air through a large duct into the inlet chamber of a collector. The coated tires are conveyed to storage or directly to a press room for a final curing.

The self-contained collector is operated under suction by an exhauster which produces a negative pressure in the inlet chamber. As the dust laden air enters the collector, it is suddenly expanded after passing through a bank of four Venturi tubes with a resultant loss of velocity. This causes the heavier dust particles to drop into the water and sink to the bottom as a sludge. The sludge deposited on the impingement surfaces of the collector is washed down into the tank and settled to the bottom for removal. A chain conveyor, fitted with angle flights, deposits the sludge into a receptacle for salvage or for discard.

The washed air containing water droplets is directed through an eliminator section where the spray is deposited and drained back to the main collector tank. The clean air is then drawn through the collector outlet for discharge.

Pictures by courtesy of Pangborn Corp.

Construction Work Injuries Decline

Injury rates in contract construction again declined in 1957, setting a new record low for the post-war period, according to reports compiled by the U. S. Department of Labor's Bureau of Labor Statistics.

The average injury-frequency rate for all types of contract construction was 30.3 disabling injuries per million hours worked during 1957, compared with 31.2 in 1956. The 1957 rate was the lowest recorded in the Bureau's series, except for the war years of 1943 and 1944, when construction activity was at an abnormally low level. There has been a fairly steady decline in construction injury rates, from a peak of 41.0 in 1950, reflecting increased safety activity in the industry. The greatest improvement was shown by contractors engaged in heavy construction, whose rate declined to 26.6 in 1957.

In contrast to the decreased frequency of injuries, the cases reported in 1957 tended to be slightly more serious than those in 1956. The average days of disability increased from 85 per case in 1956 to 95 in 1957. There were slightly higher proportions of deaths and permanent impairments in 1957. Several minor disasters on construction projects contributed to these higher proportions of more serious cases.

There were about 200,000 disabling injuries to workers engaged in contract construction during 1957—an appreciable decrease from the 1955 and 1956 totals. Although part of the decrease between 1956 and 1957 was due to decreased employment, the decrease in the volume of injuries was greater than that in employment.

Retail Store Injury Rates

Injury rates for retail apparel and general merchandise stores in 1957 were generally much lower than in most other lines of wholesale and retail trade, according to reports compiled by the U. S. Department of Labor's Bureau of Labor Statistics.

The frequency rate for retail apparel and accessories stores was 4.3 injuries per million hours worked, and that for retail general merchandise was 6.3. Among the general merchandise group, the rate for variety stores (3.8) was much lower than that for department stores (7.6) or for dry goods and other miscellaneous general merchandise stores (5.9). All of these rates, however, were lower than for any of the other trade classifications.

In other types of trade, the injury-frequency rates varied from 9.8 for eating and drinking places to 20.5 for wholesale and retail dairy products and 23.4 for lumber and other building-materials dealers.

Injury-frequency rates for most types of trade showed modest decreases or little change from 1956. The average for all wholesale and retail trade classifications combined decreased from 12.5 disabling injuries per million hours worked in 1956 to 11.9 in 1957.

With the decline in injury rates and slightly reduced hours of exposure, the volume of disabling injuries to workers in trade decreased from approximately 355,000 in 1956 to 340,000 in 1957.

Openings for Safety Inspectors

The United States Civil Service Commission announces that Safety Inspectors are needed in the Interstate Commerce Commission at locations throughout the United States. The entrance salaries are $4,040 and $5,985 a year.

Appropriate experience in highway safety work or as a college instructor in transportation, engineering, or similar subjects is required. College study in transportation or mechanical engineering may be substituted for all of the experience required for positions paying $4,040 a year, and for part of that required for the higher salary level. A written test will be given.

Further information and application forms may be obtained at many post offices throughout the country, or from the U. S. Civil Service Commission, Washington 25, D. C. Applications will be accepted by the Board of U. S. Civil Service Examiners, Interstate Commerce Commission, Washington 25, D. C., until further notice.

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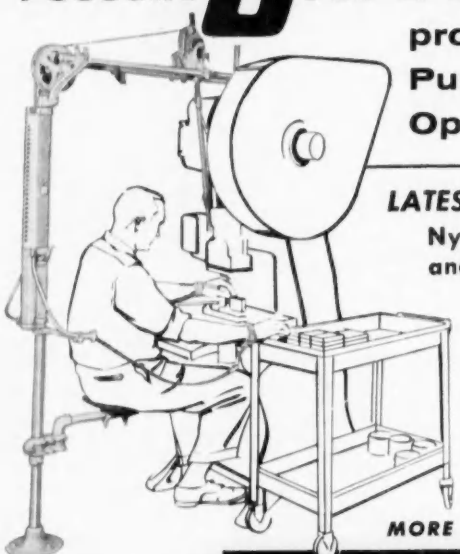

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(For details, use Key # A-6 on card on page 1)

Scrap Yard Hazards

Surplus stockpiles pose a definite safety problem in many scrap yards An oversupply of scrap makes it necessary to make the most use of space and ground areas, thereby creating possible unsafe conditions. If this is a problem in your yard, here are some items to watch for, warns the Institute of Scrap Iron & Steel.

HIGH PILES—There may be a tendency to make piles as high as your equipment will reach. The hazards which may be so created include:

1. The pile may slide or fall over if not provided with supports to keep it stable.

2. Sheet and light scrap may be above fences and buildings which normally shelter it from the wind. A strong wind may topple the pile or blow scrap off and into the yard or onto a neighboring property, possibly causing damage or injury to someone.

3. Where a normal pile of scrap may be placed against a fence which acts as a retainer and support, a high pile may cause such a fence to collapse with disastrous results. If the fence borders on a sidewalk, highway, or occupied property, considerable damage may be done.

WIDE PILES—If piles of scrap are filling up the available ground area, other unsafe conditions may result:

1. Limited roadways—If piles are allowed to encroach on normal roadways, a traffic hazard may be created. Where previously trucks could turn around, it may be necessary for them to back out of certain areas. If so, some person should be designated to assist the driver by making certain that no one steps in back of the truck and by guiding the driver.

If piles near roadways limit the vision of drivers so they cannot see around or past the piles, suitable "stop" or warning signs should be erected.

No traffic should be permitted near piles containing materials which may roll or fall onto the truck or roadway.

2. Congested work areas—If employes are required to operate shears, load presses, or torch materials, sufficient working area should be allowed so as not to create a hazard from falling materials, awkward positions in handling, or lack of space for materials which have been cut.

Provisions should be made for walking so that it is not necessary to climb over piles to reach work areas.

GENERAL HOUSEKEEPING—Under crowded conditions, it is ever more important that efforts be made to keep grounds and shops as clean as possible. Materials which could be tripping hazards should be removed from work and walk areas regularly.

A Clean Yard Is A Safer Yard.

(For details, use Key # A-7 on card on page 1)

Seventeen gas utility and pipeline companies have earned national honors for outstanding traffic safety records achieved by their motor vehicle fleets, the National Safety Council and the American Gas Association announce.

The gas company fleets were winners in special divisions of the National Fleet Safety Contest conducted by the Council and sponsored by A.G.A. Two award winners maintained perfect safety records, and two other companies received certificates for perfect records.

The 128 gas industry fleets participating in the contest had a total of 5,154 accidents for a rate of 1.49 per 100,000 vehicle miles. This was the lowest rate in the four years during which A.G.A. has sponsored the gas divisions of the contest.

Plaque winners among very large gas utility companies were: First, Columbia Gas System, Inc., Pittsburgh Group; second, Columbia Gas System, Inc., Columbus Group; and third, Hope Natural Gas Co., Clarksburg, W. Va.

In the large gas utility company, first place went to Pioneer Natural Gas Co., Amarillo, Texas, second to the Gas Department, Northern States Power Co., Minneapolis, and third to Kentucky-West Virginia Gas Co., Ashland, Ky.

Wisconsin Power and Light Co., Madison, Wis., won top honors among medium-sized gas utilities. Empire Gas & Fuel Co., Ltd., Wellsville, N. Y., was second, and Southeastern Michigan Gas Co., Port Huron, Mich., third.

Top honors in the small-company classification were earned by Michigan Gas & Electric Co., Three Rivers, Mich., with Carolina Suburban Gas Co., Laurens, S. C., placing second, and Superior Water, Light and Power Co., Superior, Wis., third.

Three gas transmission companies were awarded plaques for traffic safety. First place went to Owens, Libbey-Owens Gas Department, Charleston, W. Va., Michigan Wisconsin Pipe Line Co., Detroit, was second, and Natural Gas Pipeline Co. of America, Chicago, was third.

The National Safety Council and A.G.A. also presented perfect records certificates to two other small gas utility companies. They were The Narragansett Electric Co., Gas Division, Westerly, R. I., and Central Wisconsin Gas Co., Sparta, Wis.

• • •

The 20th annual Safety Meeting, sponsored by Ebasco Services Incorporated, was held in Chicago, in conjunction with the National Safety Congress. Approximately 150 utility executives from all parts of the country attended the three-day sessions.

During the meeting, thirty plaques and certificates were awarded to those companies participating in Ebasco's 1957–1958 Safety Award Program. These 30 organizations operated throughout the award year with an accident record at least 25 percent better than the national average for their respective industries.

A Gold Plaque was awarded to Pacific Power & Light Company for an injury index 82.38% below the national average for electric utility operations. A Silver Plaque was presented to Texas Electric Service Company with an index 79.76% better than the same national average.

Among the speakers were R. D. Blasier, vice president, Westinghouse Electric Corporation, who emphasized that employee safety is a management responsibility and one which should be recognized as such. He said that unions have an important role to play in the educational and promotional field of safety work but warned against forfeiting responsibility and authority through collective bargaining agreements. He also pointed to the dangers management faces in various types of legislation and bureaucratic control on both the state and national level.

• • •

The Millville Plant at Harpers Ferry, W. Va., owned and operated by Jones & Laughlin Steel Corporation, of Pittsburgh, was one of nine winners in the 1957 National Lime Association Safety Competition, the U. S. Bureau of Mines announced recently.

All award-winning calcining plants had injury-free records for 1957. The Bureau of Mines said the Jones & Laughlin plant, whose superintendent is Jack Cameron, worked 140,189 man hours last year without any lost time disability from work injury. It will receive a certificate of honor.

Fifty-two lime plants in 17 states entered the 1957 competition, sponsored by the National Life Association and conducted by the Bureau of Mines.

• • •

Twelve divisions of Jones & Laughlin Steel Corporation have earned top safety awards in the annual competition sponsored by the Metals Section of the National Safety Council. First place awards for accident-free performances in the year-long contest were earned by J&L's Cold Finished Bar Division plant at Willimantic, Conn.; the Wire Rope Division, Muncy, Pa.; J&L Container Division plants at Toledo, O., Cleveland, O., Kansas City, Mo., Atlanta, Ga., and Port Arthur, Tex.; and J&L warehouses at Cincinnati, O., New York,

N. Y., Memphis, Tenn., and Cleveland. J&L's Indianapolis, Ind., warehouse earned a second place award for improved safety performance.

Plaques symbolizing the awards were presented at the Metals Section Luncheon at the National Safety Congress.

M. C. Musser, employed in the Personnel Relations Department at J&L's Wire Rope Division, accepted the award for his division. The other J&L awards were accepted by T. B. Daniels, Assistant to the Vice President—J&L Steel Warehouse Division; A. R. Anwyll, Container Division Safety Director; and George C. Peters, Safety Engineer.

• • •

The H. D. Lee company of Kansas City has received two merit awards from the American Insurance group for outstanding safety in garment manufacturing operation. The employees of Lee's 13 plants amassed a total of 1,700,000 man-hours of work without a disabling injury. The Kansas City plant worked two million man-hours without a disabling accident.

In the presentation of the awards at a recent ceremony in Kansas City, W. J. McCord, vice-president of the American Insurance group, described the Lee effort as "one of the outstanding records in the garment industry." The safety campaign was directed by R. W. Dietrick, secretary-treasurer of the Lee Company.

• • •

A reduction in all phases of accidents at the Naval Aviation Supply Depot, 700 Robbins Ave., Philadelphia, during the first nine months of 1958 has been reported by John J. Dougherty, Safety Superintendent. He credits the reduction mainly to an idea of advertising the costs of accidents and injuries, thus calling it to the attention of all employees.

The Safety Division prepares quarterly bills for each supervisor in whose jurisdiction an accident or injury occurs. This bill includes an itemized breakdown of each accident or injury and these costs:

Employee time, supervisory time, medical costs, cost of investigation, material damage, and miscellaneous cost.

The itemized breakdown used for first aid cases is the average cost for the case while the breakdown on all other types of accidents is estimated as accurately as possible with available information.

A breakdown for the first nine months of this year, shows the remarkable reduction effected by this novel approach to safety.

	1957	1958
First aid injuries	162	90
Disabling injuries	3	2
Motor Vehicle accidents	2	1
Fork truck accidents	2	1

"Although there are many intangibles in the new program, the savings have been tangible and come at a time when all government agencies are attempting to stretch their alloted dollars," Dougherty added.

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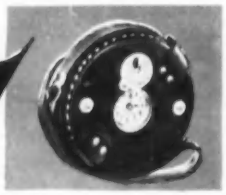


(For details, use Key # A-8 on card on page 1)

Construction Safety Code

The American Standards Safety Code for Building Construction (A10.2-1944) is to be revised and its scope to be enlarged to include highway and heavy construction. The American Standards Association Sectional Committee on Safety in the Construction Industry recently made the following recommendations:

that the scope of the committee be broadened to include all phases of construction—building, heavy, and highway;

that subcommittees be formed to deal with the various technical aspects of the different phases of the construction industry.

"The objective of the Sectional Committee is to develop a workable and enforceable code that can be adopted by safety authorities in all states of the Union," said Frank Boodro, the committee chairman.

"At present, contractors working in different states, or even if they are working in different areas of one state, may find themselves subject to contradictory safety codes. This is confusing and costly. It would be of great advantage to all to be able to work under a uniform safety code in all sections of the country. The committee hopes to be able to develop a uniform code that is acceptable to all interested groups and authorities."

The National Safety Council and the American Institute of Architects are joint sponsors of the sectional committee. Mr. Boodro said that the committee would welcome any suggestions from organizations and groups that are concerned with the scope of the committee's work.

Retail Shop Safety Success

Safety programs based on the premise that safety is a state of mind can reduce the number of disabling injuries in retail store operations as well as in industrial plants, E. F. Tomlinson, president of B. F. Goodrich Tire Company, said recently.

He said his company has cut disabling injuries among employees in its nationwide retail stores from an annual average of 176 before 1956 to 24 in 1957.

"We've done this with the same techniques we use to make employees safety conscious in our production plants, where employees are eight times as safe on the job as off the job," Tomlinson said.

The techniques feature constant repetition of safety rules, through signs, talks, bulletins, slogans and other promotional means. "In our retail stores, the techniques have been especially successful in automotive service areas, where the work with machinery and equipment requires extra care to avoid accidents," he said.

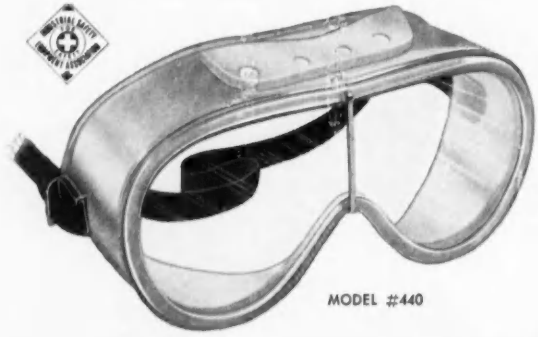
Other effective parts of the program include: 1) a comprehensive safety manual which clearly outlines all safety rules, 2) special bulletins that describe safe operating practices for new equipment, and 3) regular surveys to determine if safety rules are being followed.

The safety manuals and bulletins cover such subjects as safe operating instructions for air compressors, location of fire extinguishers, safe demonstration of power mowers, truck tire inflation safety regulations and use of automotive safety belts.

Store managers are held responsible for safety conditions in their stores. They, and all service employees, sign "safe work" pledges; the managers pledging to make all jobs as safe as possible, and the employees pledging to perform their duties in a safe manner. Managers and employees are also required to sign or initial all safety bulletins as evidence they have digested the instructions.

Tomlinson said that the program has made employees so safety conscious that traffic accidents in company cars have been reduced by 33 percent.

He added that the program's success stems largely from the enthusiastic support given it by Tire Company management. "As with most programs in industry, safety is only as effective as the support given it by management."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(For details, use Key # A-19 on card on page 1)

THE FIRE FRONT

Who Pays For Fires?

Everyone pays a share of this country's staggering annual fire loss of more than one and a quarter billion dollars, the fall conference of the National Fire Protection Association was told recently.

"Let's not kid ourselves that because we personally fail to have a fire, we don't pay for the other fellow's fire," said T. Sedden Duke, board chairman of the Association. "Insurance premiums collected from you help to cover the losses of somebody else's fire. And fire waste is reflected in higher costs of everything you eat, wear, and live in," he explained.

Speaking at the opening session of the non-profit technical and education organization's three-day conference in Pittsburgh, Duke charged the business community to take a more responsible attitude toward fire prevention.

If businessmen are ever tempted to have a thoughtless indifference towards fire, he said, they should remind themselves that "fire can destroy both life and property, it can destroy the productivity and purchasing power of workers, and it can remove from the community a taxable going concern on which the community depends."

The nation can't afford the 38,000 industrial fires or 70,800 mercantile fires annually, he said. Nor can it stand the 573,400 residential fires, 4,100 fires in schools, or 3,200 fires in churches each year.

Really Fire-Safe?

Much modern industrial building shows critical deficiencies in fire-safe construction, the fall conference of the National Fire Protection Association was told. A frequent and serious oversight in design is failure to provide for the emergency release of the hot gasses and smoke generated by a fire within the plant, according to Edwin N. Searl, superintendent of engineering of the Western Actuarial Bureau.

"Many industrial buildings are being built with continuous, unvented roofs," he said. "With the advent of good lighting and conditioned air, the familiar monitors and saw-toothed skylights are disappearing.

"At the same time, building areas are expanding to unprecedented dimensions in order to accommodate the large scale manufacturing operations of mass production industries."

The result, said Searl, is that fires in plants of this type mushroom throughout the interior instead of venting their hot gasses and smoke to the outside.

"Firemen are unable to cope with such fires from the outside, and are driven back in attempts to fight from the inside.

"A review of recent large fires shows all too often that so-called modern industrial design may be moving forward in many respects. But it has taken a long backward step with respect to venting of smoke and gasses in time of fire."

Searl, who is also chairman of the NFPA Committee of Building Construction, said the problem is being given serious attention in many quarters, among them a research project by General Motors.

The answer, he said, may be in a tentative guide for emergency smoke and heat venting in industrial properties prepared by the NFPA Committee he heads. Its principles, on which he asked comments and suggestions, may "go a long way toward correcting the deficiencies of modern industrial design."

Fire Losses Rising

Estimated fire losses in the United States during October amounted to $73,393,000, the National Board of Fire Underwriters has reported. This loss represents a decrease of 5.6 percent from losses of $77,753,000 reported for October, 1957, and an increase of 0.1 percent over losses of $73,303,000 for last September (1958).

Losses for the first 10 months of 1958 now total $884,204,000, an increase of 3.3 percent over the first 10 months of 1957, when they amounted to $856,350,000. These estimated losses include an allowance for uninsured and unreported losses.

Who Is Responsible For Industrial Fires?

Management must take the major blame for this country's disgraceful annual quarter billion dollar loss in industrial fires, a fire protection engineer charged recently.

The failure of plant owners and operators to adequately protect industrial properties is responsible for the major fires which "close down plants, put people out of work, unsettle insurance company reserves and disrupt our national economy which depends on continuous and ever expanding production for its existence," according to Chester I. Babcock, manager of the National Fire Protection Association's fire record department.

He was one of the speakers at the Association's fall conference meeting in Pittsburgh.

Last year 41,000 industrial fires caused property damage totalling $232,000,000, Babcock revealed. Of these 41,000 fires, only 161 accounted for nearly half the total loss.

It is these large loss fires, he asserted, that basically are caused by owners and managers who in many cases "have never given fire protection more than lip service or

(Continued on page 42)

Static electricity contributes to fire and explosion hazard in many phases of industry. Often, it is generated in places where it is not noticed and under circumstances where it may not ordinarily cause trouble. However, it should be recognized that static electricity is an important source of potential ignition, particularly in those processes which involve the handling of flammable liquids, gases and combustible dusts. Some of the industries which have found this hazard relatively common are the petroleum, chemical, textile, plastics, printing, agricultural, powdered metals, mining, and service industries such as dry cleaning. Many industries recognize the static hazard and regularly attempt to control it while others have not yet appreciated its prevalence and danger, warns a recent bulletin of the National Board of Fire Underwriters.

The industries concerned with the problem are not only exposed to an increased hazard, but the static electricity also causes many troublesome production problems. High speed machinery, such as cotton gins, may become clogged with static-attracted lint fibers. This accumulation of cotton linters can cause frictional heat and fires. Static-attracted dust and lint may impair the quality of goods in process. Static is responsible for reducing production, lowering work quality and increasing the amount of waste in many plants.

What Is Static Electricity?

"Static electricity" means electricity **at rest** on the surface of a body as distinguished from the commonly recognized type of electricity known as electricity **in motion.** The terms are primarily used to describe effects, such as the sparks observed when one walks across wool carpeting on a dry day and touches a metal object, as compared to the completely different effects of electricity in motion which are the production of heat and light and magnetic forces such as used to drive electric motors. Static has also been known as frictional electricity since it is generated by the rubbing or contact and separation of the surfaces of two dissimilar bodies. One such body takes a positive charge and the other a negative charge. The charges remain on the outer surface of the bodies unless they come in contact with or near a less charged, uncharged or oppositely charged body. At such time the charge may pass from one body to another in order to be neutralized. When sufficient charge has accumulated to break down the resistance of the atmosphere, a spark or electrical discharge may be formed. It is this resulting spark which often causes the ignition of flammable materials.

Conductive Materials

Metals are generally considered to be good conductors of electricity. They are consequently used in grounding or neutralizing static charges. On the other hand, materials such as glass, stone, plastics and synthetic textiles resist the flow of electricity as nonconductors and are frequently used as insulators.

Electrostatic sparks have the ability to ignite many materials. Experiments have shown that explosive gas and dust mixtures can be ignited by these sparks. The amount of energy required to ignite such gas mixtures is very small. The energy required for such ignitions is dependent on several variables including the spacing and shape of the electrodes. The shape of an electrode is an important factor. For instance, when a charged insulating body is near a grounded sharp metal point, a discharge and ignition may occur more easily than it would on a blunt surface because of concentrated charge at point.

The gold leaf electroscope and the neon tube tester are two instruments that have been used for many years to provide qualitative tests for the presence of static electricity. The gold leaves will separate and the neon tube will glow to indicate the presence of very small static charges when these instruments are brought near a charged object. The electrostatic voltmeter and the electron tube detectors are instruments which not only indicate the presence of static charges but also provide a quantitative reading of the voltage or relative intensity of the charges. Some of these instruments are not safe to use in an explosive atmosphere.

Where Is Static Electricity a Hazard?

Any process that involves the storage and handling of flammable gases and liquids, combustible fibers and dusts and similar easily ignitable materials can be subject to the fire hazard of static electricity. Although there is no generation of static electricity in the actual storage of flammable liquids, static charges are produced during the flow or through turbulence in mixing or discharge of liquids into or from tanks or other containers.

Static electricity is generated in moving parts of equipment such as power transmission belts. Static sparks as long as six inches can be discharged from such equipment. Both the equipment and the belt require grounding in such instances.

A listing of some of the more common places where static charges may accumulate is shown in Table 1.

In occupancies where the handling of highly flammable materials is involved, the tendency of operating personnel to become charged with static electricity requires careful study and the use of special clothing such as conductive shoes.

It is difficult to prevent the generation of static electricity. The hazard, however, does not result from the generation alone; rather,

KEEP STATIC ELECTRICITY

it occurs when static accumulates and builds up a voltage charge to such an extent that a spark is discharged. Prevention, therefore, consists of controlling the static accumulation.

Grounding and Bonding: The basic method for mitigating the hazard of static electricity is to provide a means by which the electric charges are led away harmlessly as rapidly as they are produced. This can be accomplished by electrically connecting all of the conducting objects involved to a proper ground. Joints between conducting objects should either be electrically conductive or be connected by a bond wire. Sparks between conducting parts are usually far more intense and likely to start a fire than the feebler sparks between insulating surfaces. The grounding and bonding of equipment is described in codes and standards such as NBFU No. 70, "National Electrical Code," and NFPA No. 77, "Static Electricity."

The grounding of personnel is also an important safety item. Shoes and floor coverings of conductive rubber have been developed for this purpose. Conductive floors should be waxed only with electrically conductive waxes listed by Underwriters' Laboratories, Inc.

Humidifying: The problem of conducting away the electrical charge becomes much more difficult when one or both of the bodies involved is not electrically conducting. One method used is to maintain a condition of high relative humidity in the surrounding atmosphere. By doing this a thin layer of moisture condenses as a continuous film on the surfaces of all exposed bodies and this contains enough dissolved material to make it slightly conductive electrically. The relation of humidity to the mitigation of static electricity has led to the erroneous belief that the presence of moisture makes the air conducting. Actually the presence

TABLE 1: Where Do Static Charges Accumulate?

Storage and Handling of Flammable Liquids
- **Storage Tanks**
- **Pipe Lines—Pumps—Etc.**
- **Non-conductive Rubber Hose**
- **Tank Trucks**
- **Drums, Containers and Safety Cans**
- **Platform Scales and Weigh Tanks**
- **Processing Equipment—(Distillation—Solvent Extraction—Etc.)**

Fibres and Dusts
- **Aspirators**
- **Bins**
- **Blower Systems**
- **Bran Dusters**
- **Grain Cleaners**
- **Conveyors**
- **Cotton Gins**
- **Driers**
- **Dust Collectors**
- **Elevators**
- **Fans**
- **Grinders**
- **Lace Looms**
- **Midlings Mills**
- **Mixers**
- **Packers**
- **Purifiers**
- **Reels, Revolving Screens and Bolters**
- **Scales**
- **Scourers and Polishers**
- **Sifters**
- **Spouts**
- **Threshing Machines**
- **Wind Trunks and Dust Collectors**

Application of Various Materials Such as Paints, Plastics, Rubber Compounds, Etc.
- **Coating**
- **Spreading**
- **Impregnating**

Transmission Machinery
- **Power Equipment (Belts and Pulleys)**
- **Conveyor Belts**

(Continued on the next page)

of water vapor decreases the almost infinitesimal conductivity of air.

Sparks from static charges occur more frequently in the dry winter weather than in the hot humid months of the summer. There is, however, no sharp line drawn as to which humidities are dangerous and which are safe. Many types of air conditioning equipment are now available for automatically controlling the humidity in buildings. Many industries that handle flammable materials avail themselves of this equipment. Steam and other humidifying methods are also used to overcome the static problem.

Chemical anti-static agents are used on various textiles to improve the surface conductivity as well as to increase the moisture on the surface. Some of these chemicals are reported to develop a charge opposite to that formed within the fiber.

Ionization: A static charge may also be neutralized by providing a supply of ions (electrically charged particles) in close proximity to the charged object. These oppositely charged ions will then be attracted to the object and serve to neutralize the original charge. Examples of this are found in the combs placed near the surface of a power transmission belt as it leaves the pulley or the use of small gas jets close to the paper in a printing press. "Electric neutralizers" consist of rows of teeth charged from a transformer to such a high alternating potential that ionization occurs. They are also used near the charged object. Combs, gas jets and electric neutralizers are not suitable for use in the presence of flammable gases, vapors or dusts.

Static electricity can be removed from machinery and from moving paper, plastic sheeting, textiles, and other materials by ionization of the air by the use of radioactive materials. Alpha radiation from radioactive surfaces is used to ionize the nearby surrounding air. Such equipment should be installed with the advice of radiation specialists.

Who Is Responsible?

(from page 39)

even completely ignore it, possibly under the illusion that an insurance policy premium solves all their fire problems."

Others "realize they'd better do something but lack understanding of the complexities of the problem or lack proper guidance." A third group comprises those who "have provided protection which on paper appears to be adequate in all respects" but have overlooked the possibility of human failure.

The National Fire Protection Association for more than 60 years has been studying large loss fires, Babcock said. The causes found include weaknesses in fire-safe design of buildings, and substandard or nonexistent fire protection.

But basically "bad fires are caused by people—people who allowed these weaknesses to exist."

Babcock urged fire protection engineers, plant safety supervisors and public fire officials to concentrate on changing "the thinking of the plant owner or manager—to convince him that fire protection is his responsibility and must have his full and continuous support."

In the same session of the National Fire Protection Association's fall conference, the senior engineer of the U. S. Bureau of Mines detailed fire problems connected with combustible metals.

The rapidly increasing use of metals like titanium and zirconium has created some unusual problems, according to Hylton R. Brown.

Some metals ignite spontaneously, some react violently with water and some are readily combustible only in finely divided form, as dust, chips or shavings, he said. All the combustible metals and some that are not considered combustible are capable of producing dust explosions.

Since there is little reliable experience on control and extinguishment of combustible metal fires, he recommended that plant operators and fire chiefs work together on problems.

Brown, who is also chairman of the NFPA Committee on Combustible Metals, urged operators of metalworking plants to become familiar with the general characteristics and fire hazards of radioactive metals like thorium, uranium and plutonium.

Nelson W. Hartz, sales manager of the Technical Products Division of Mine Safety Appliances Co., Pittsburgh, described the use and limitations of combustible gas indicators.

The instrument, he said, has been refined and adapted to a point where it is now indispensable in dealing with flammable gas hazards in a wide range of industrial applications.

Malcolm S. Blake, assistant manager of the Insurance Department of Bethlehem Steel Company, told of the use which industry makes of fire records.

The three-day fall conference of the National Fire Protection Association brings together more than 500 fire safety experts from the United States and Canada, as well as individuals from many foreign countries.

(Continued from page 41)

Discharge of Vapors and Gases

Dry Cleaning
- **Washers**
- **Drying Tumblers**
- **Extractors**
- **Separators**
- **Spotting Tables**

Miscellaneous
- **Mixing, Grinding and Screening of Combustible Materials**
- **Printing and Lithographing**
- **Operating Rooms in Hospitals**

NEW TYPE OF FIRE DETECTOR

WHERE THERE'S SMOKE—fire, or even vapor, this ultraviolet sensitive tube detects it—even all three at once. As man lights pipe, the tube (at center) "contacts" fire, smoke indicators. Gases in beaker set off vapor indicator.

ULTRAVIOLET-SENSITIVE TUBE SENSES FIRE, SMOKE AND VAPORS

A **"break-through"** has been made in finding a way to make practical use of invisible ultraviolet rays to detect fire and explosive vapors in homes and industry. An utraviolet-sensitive tube developed after five years of work can simultaneously detect fire, smoke and combustible vapors. It is said to be the first device ever designed that can sense all three of these phenomena at the same time.

Ultraviolet is at the opposite end of the color spectrum from infra-red. It is similar to blue light, but its wave-length is too short to be seen by the human eye.

The new tube—about the size of an index finger—may revolutionize the design of fire and explosion warning systems, making possible warning devices that are both accurate and versatile. The research center that developed the tube believes this use of ultraviolet-sensing principles is one of the most significant research developments of the last decade. Work is already in progress with a major coal mining equipment manufacturer on application of the tube in the coal mining industry.

The new development could be used, for example, to detect potentially explosive gases that sometimes accumulate in coal mines, and thus avoid terrible disasters. It also could serve as a furnace flame watchdog to assure greater heating system safety in homes and commercial buildings, or as the heart of new fire detection systems to provide faster warning, reacting to either fire, smoke or vapors.

In a typical warning system, the tube would work with an amplifier circuit to add up the impulses of eletrical energy generated by the tube as it counts ultraviolet rays. Whenever the rate of these impulses exceeded a specific rate, an alarm would be sounded, equipment turned off, sprinklers started, etc.

The new tube is said also to have an almost-unlimited life expectancy and can be mass-produced economically.

The team of researchers who developed the ultraviolet-sensitive tube had to overcome these problems:

Design a cathode tube sensitive to ultraviolet rays.

Make a tube with stable characteristics (not subject to ups and downs in operating effectiveness).

Make the tube relatively immune to ultraviolet rays.

Design the tube so it would ignore the ultraviolet given off by artificial lights to prevent false warning alarms.

New control systems using the ultraviolet-sensitive tube already are on the drawing boards. Pilot production is currently underway.

A source for further information about the development can be obtained on inquiry to the Editor.

Liquefied Petroleum Gases

Important changes in standards relating to the handling of liquefied petroleum gases have been adopted by the National Fire Protection Association at its recent annual meeting in Chicago.

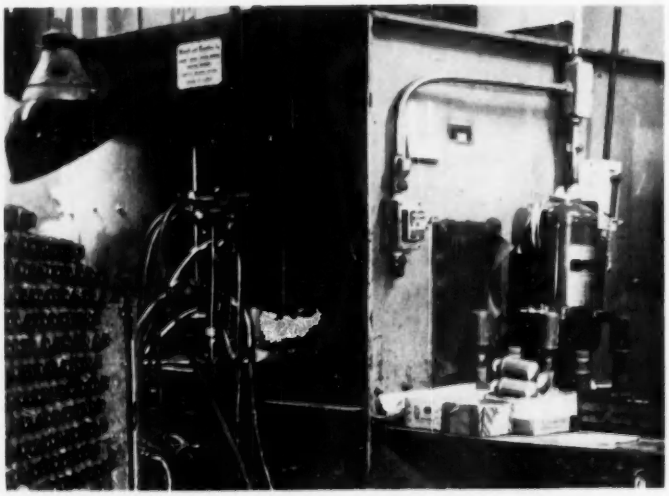
The Association has issued new editions of the standards—NFPA No. 58, Liquefied Petroleum Gases, and NFPA No. 59, Liquefied Petroleum Gases at Utility Gas Plants—incorporating the revisions.

Standard No. 58, Liquefied Petroleum Gases, contains new provisions on the location and construction of containers, liquid level gauging devices, exhaust systems and other provisions pertaining to the design, construction and operation of liquefied petroleum gas installations covered in the scope of the standard.

Liquefied Petroleum Gases at Utility Gas Plants, NFPA No. 59, contains many new changes particularly in the portions of the standard on location of containers, installation of storage containers and handling. This standard pertains to the design, construction, location, installation and operation of liquefied petroleum gas systems at utility facilities.

The new standards were prepared by the NFPA Committee on Liquefied Petroleum Gas, a section of the general Committee on Gases. It is one of more than 110 technical committees through which the National Fire Protection Association develops its widely-used National Fire Codes.

NFPA Standard No. 58, Liquefied Petroleum Gases, (80 pages, 50 cents) and NFPA No. 59, Liquefied Petroleum Gases at Utility Gas Plants, (40 pages, 50 cents) may be obtained from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.



Dry Chemical Protects Paint Spray Operation

Some paint spray operations are high-potential fire hazards, since quick air-dry paint is highly flammable. Even though every safe guard has been taken this spray booth is still vulnerable to fire. Explosion-proof light bulbs and conduit boxes are standard precautions, but guarding against the unexpected is a compact low cost automatic dry chemical fire extinguisher. If fire should occur, a fusible metal link melts and actuates the extinguisher, flooding the interior of the booth with 30 pounds of dry chemical.

Picture by courtesy of Ansul Chemical Co.

Coal Dust Explosions

Fires and explosions that have occurred in coal preparation plants have resulted in the issuance of a new standard by the National Fire Protection Association. The new standard covers building construction and arrangement for plants producing conditioned coal for firing of boilers or power generating plants. The standard also gives details on how to prevent dust explosions and machines and equipment used for screening, crushing, pulverizing, drying and conveying the treated coal. Information on explosion venting, fire fighting equipment and lightning protection are also included. Prepared by the NFPA Committee on Dust Explosion Hazards, the standard was adopted at the Association's annual meeting.

Copies of the standard (NFPA No. 653, 20 pages, 50 cents) are available from the National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

Extinguisher Standard

Important changes in standards for the use of fire extinguishers have been issued by the National Fire Protection Association. Installation and maintenance recommendations in the latest edition of the NFPA pamphlet include a tightening up on the use of carbon tetrachloride-type fire extinguishers and insertion of recommendations on hydrostatic testing of carbon dioxide units.

In line with the Association's policy for keeping its standards up to date, the revisions were acted upon at the 1958 NFPA annual meeting on recommendations of its Committee on Portable Fire Extinguishers.

Copies of the 1958 Standard for Portable Fire Extinguishers (NFPA No. 10, 84 pages, 60 cents) may be obtained from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Injury Statistics

A publication of special interest to health departments and persons and groups concerned with accident prevention is now available through the Public Health Service. "Accidental Injury Statistics," produced by the PHS Accident Prevention Program, presents, through a series of charts and tables, the salient facts about injuries and deaths in the United States. While the supply lasts, single copies may be obtained free of charge by writing to the Department of Health, Education, and Welfare, Division of Special Health Services, Washington 25, D. C.

Figures used in the report are based on National Health Survey data collected in sample household interviews, on statistics provided by the Office of Vital Statistics, and on information contained in several selected studies of accidental injuries. Included are figures on incidence of non-fatal injuries, leading causes of death, trends in accidental deaths as recorded over a 50-year period, types of accidents, and relationship of accidents to marital status and place of residence.

The publication reveals, through a 40-year record, little change in the number of accidental deaths for the population as a whole. It indicates that approximately 50 million persons per year are injured in accidents, 40 percent of which occur in the home. Approximately two-thirds of these home accidents take place inside the house, over 20 percent of them in the kitchen. Other figures in the report demonstrate the staggering number of man-years lost through accidents.

Data contained in the report make apparent the dreadful toll accidents are exacting in lives of youth. While death rates in age groups up to 35 due to such diseases as tuberculosis, influenza, pneumonia, typhoid fever, and heart ailments—all major killers in 1900—have shown a steady and dramatic decline, the rate of accidental deaths in this age group has remained relatively steady, claiming almost 35,000 lives in 1956.

Figures on deaths from the various types of accidents are also presented for each State in the United States in this report.

The Accident Prevention Program plans to revise "Accidental Injury Statistics" annually, including new data as it becomes available. Publication may be more frequent, depending upon needs.

Automotive Safety

The Automobile Manufacturers Association has issued the first edition of a new quarterly publication in the highway safety field. Entitled "Automotive Safety," the eight-page bulletin is being distributed throughout the nation to safety specialists, automotive writers, educators, government officials, business leaders and others vitally concerned with problems of safety on the streets and highways of America.

It will cover a broad range of subjects, reporting significant developments in all the human and mechanical areas of automotive safety, such as vehicles, drivers, highways and research. Particular attention will be given to activities carried out by the motor vehicle manufacturers or supported by them in whole or in part, the AMA said.

The first issue contains articles on such subjects as engineering research for vehicle safety, Northwestern University's new study of accident causes, safety features of 1959 cars, industry grants of funds to safety programs, a new traffic planning guide for cities, and the work of Yale's school for traffic engineers. For details, write to: Automobile Manufacturers Association, 320 New Center Bldg., Detroit 2, Mich.

New Noise Manual

Because hearing loss has become the new Workmen's Compensation Problem, industrial management and those responsible for safety and hygiene are becoming increasingly concerned with proper control measures, safe job placement of personnel, and the legal aspects involved.

The new "Foundry Noise Manual," published by the American Foundrymen's Society, from their international headquarters in Des Plaines, Illinois, has direct application to the noise problems confronting general industry. A comprehensive yet concise reference, it explains in easy-to-understand terms the scientific principles involved in noise control. It describes the effects of noise on hearing and offers practical solutions for common noise problems.

Text matter covers such important subjects as: pre-employment audiograms as a protection against claims, industry's liability in hearing losses, physics of noise —generation, intensity and frequency factors, physiological aspects of hearing losses among employees, explanation of the ear as an "industrial machine," causes and effects of hearing impairment, advisability and methods of routine checks, corrective measures for meeting noise control problems, noise exposure, principles of noise control and protective equipment.

The entire scope of the material is intended to provide management with information to meet industrial requirements: for adequate protection of employees while on-the-job, for safeguarding company interests in relation to job placement, for dealing with possible workmen's compensation claims.

Replete with tables and clear

illustrations, this AFS Foundry Noise Manual is an unusually informative and valuable guide through a complicated and difficult subject. Casebound, the book sells for $4.75. It may be ordered from: American Foundrymen's Society, Golf & Wolf Rds., Des Plaines, Illinois.

Solvent Handbook

A 72-page "Handbook of Organic Industrial Solvents," designed to provide safety engineers with fundamental information on recognition and evaluation of solvent problems and principal methods of control, has just been published by the National Association of Mutual Casualty Companies, Chicago. The material, which has been in preparation for several years by the organization's industrial hygiene subcommittee, has not previously been available in a single publication.

Largely a compilation of existing data, it covers the physical, chemical and toxicological properties of the common industrial solvents upon which the nature and extent of hazards depend.

New material upon solvent evaporation rates was developed by Dr. L. D. Wilson, of the Wilson Industrial Hygiene and Research Laboratories, Chicago, as a research project sponsored by the association. Comments upon the physiological and toxicological effects of the solvents were prepared by Warren A. Cook, Ann Arbor, Michigan, professor of industrial health and hygiene at the University of Michigan's School of Public Health. Where specific information on toxicity for listed materials has not been obtained, probable effects of a number of them have been listed on the basis of the action of similar compounds or of compounds made up of radicals concerning which information is available, and the use of such analogies is stated.

Single copies may be obtained without charge from F. H. Deeg, National Association of Mutual Casualty Companies, 20 North Wacker Drive, Chicago 6, Illinois.

Laboratory Directory

The Seventh Edition of the "Directory of the American Council of Independent Laboratories, Inc." is available upon request without charge. Applications should be addressed to the Executive Secretary, 4302 East-West Highway, Washington 14, D. C. on company letterhead signed by a company executive.

The new Directory lists 500 individual services performed by one or more of the leading testing and research laboratories in the country.

Plastics for Lighting

The first comprehensive treatment of the subject of plastics and their uses in building illumination, through daylight or electric sources, is given in the newly published book, "Plastics in Building Illumination," issued by the Building Research Institute. Covering the subject are 12 reports by experts from the lighting and plastics industries, architects and engineers.

The book is divided into three sections: Objectives of building Illumination, Plastics Applications in Building Illumination, and the Future Application of Plastics. Described and illustrated are new types of luminous ceilings of plastics, multi-purpose building elements used for illumination, and lighting through insulating plastic wall and ceiling panels. Dr. Orville Pierson of Rohm and Haas Co. reveals a variety of new plastic products for building illumination now in development stages, including plastic wall and ceiling materials which combine sound absorption with light-diffusing qualities.

The proceedings of a meeting of the BRI Plastics Study Group held recently in Houston, Texas, this 99-page book is illustrated with photographs, schematic drawings and charts. It is available on order from the Building Research Institute, National Academy of Sciences-National Research Council, 2101 Constitution Ave., Washington 25, D. C. for $3.00 per copy.

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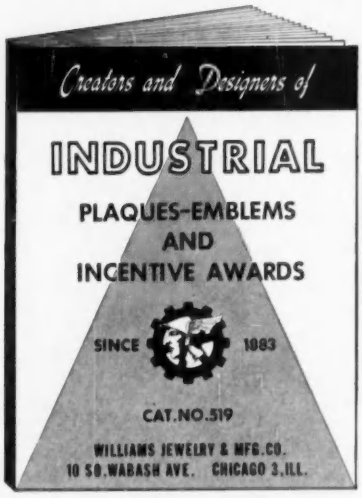

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(For details, use Key # A-9 on card on page 1)

Learning The Hard Way

FALLING OBJECTS

One of the greatest hazards on construction projects is the danger of falling objects. A boiler maker was positioning boiler tubes on the ground floor of a power house that was under construction. Some 100 feet above him a steel worker was using an air impact wrench to tighten bolts. The retaining key holding the chuck to the wrench broke and the chuck fell to the ground floor, ricocheted from the cement and struck the boiler worker behind the left ear, killing him. Hard hats are a must on construction sites, and so is temporary plank decking between floors as a guard against falling objects.

SHORT CUT TO INJURY

A man was removing paint from a concrete slab, using an approved non-flammable paint remover. However, he felt the process was too slow and started using a lacquer thinner instead. The vibration from a passing truck jarred loose the extension light he had hung up for illumination. When the bulb broke, it ignited the lacquer thinner fumes. The man was hospitalized with third degree burns. Not only is lacquer thinner highly flammable, but it is also toxic to breathe.

NO HAND TO EAT HAMBURGERS WITH

An employee was feeding meat into a hamburger mixing machine. He had been given a wooden stuffer to use as a pushing tool. However, he ignored this safeguard and was feeding by hand. Soon three of his fingers joined the rest of the hamburger. This wasn't carelessness; it was just plain negligence.

GAS ATTACK

Liquid chlorine was being pumped out of a tank car. A break occurred in an above-ground connecting pipe carrying the chlorine into the factory. A safety check-valve failed to operate. The chlorine gas, heavier than air, flowed into a new structure being constructed on a lower level. The construction crew, smelling the gas, left the building by a grade exit which brough them into direct contact with the gas flow. About 68 workmen were affected and required medical treatment. It is belived the pipe break may have been caused by ice falling from a roof, combined with inadequate support for the pipe itself. Recommendations by safety and industrial hygiene investigators for the prevention of such accidents: relocation of the transporting pipe in an underground trench; periodic testing of the safety valves that failed in this emergency; training of all workers in emergency escape techniques; provision of gas masks for personnel in the immediate area; tightening of all pipe fittings.

AIR BLAST

Air hoses continue to cause injuries when used improperly. One man was using an air nozzle to clean the dust from his clothes (in itself an unsafe practice) when he was approached by a second employee who asked the first to use the hose to clean out an old milk bottle. The air nozzle was applied to the neck of the bottle and the pressure caused the bottle to shatter. Both men were badly cut by the flying fragments.

LADDER ACROBAT

It's a tricky business trying to climb a ladder with one hand; and that's why the foreman told the worker to use a line to haul pails of cement instead of trying to carry them up the 15-foot ladder. But the worker had his own ideas and four times successfully negotiated the ladder, holding the pail in one hand and trying to hold onto the ladder with the other. On the fifth trip, however, the unsafe practice finally caught up with him. He fell, breaking his leg, and the bucket of cement just missed another workman.

MACHINE & HUMAN FAILURE RESULT: AN ACCIDENT

An employee wanted to adjust the take-up nut on the tail pulley of a belt conveyor; but he didn't shut down the conveyor. The wrench slid off the nut and when he reached out to steady himself, his hand touched the unguarded nip-point between the pulley and the belt. His arm was torn off. The dangerous nip-point should have been guarded so that no one could possibly touch it. But the employee was also guilty of an unsafe act by trying to adjust machinery without shutting it off.

KEEPING UP WITH

FLOOR MAINTENANCE SERIES
other articles Nov. & Dec.

NEW WALK-BEHIND SWEEPER

A new-type walk-behind power sweeper—reported to have the most powerful vacuum system offered on machines of its size—has been developed by the G. H. Tennant Co. Compact and maneuverable, it sweeps a 32-inch path through congested areas. The high- powered vacuum system reportedly boosts dirt pickup and cuts dust nuisance to a minimum. A high-speed 11-inch fan sucks light dirt and dust into a 1900 sq. in. fabric bag. Heavy litter, picked up by the main brush, is thrown into a removable hopper.

The machine weighs 275 lbs. and is only 33-inches wide, making it easy to handle through standard size doorways. A "full-floating" main brush follows floor contours and has a pressure adjustment for heavy soilage areas. A variable sweeping speed (0-3 mph) allows extra-clean sweeping in crowded, congested areas around machines, boxes and in narrow aisles. The machine's controls are within easy reach of the operator including a safety stop release.

A change of cylindrical accessories and the sweeper is transformed into a floor maintenance machine for light buffing and polishing of wood or asphalt tile floors. The machine (called the Model 40) is powered by a 1-cylinder, 4 hp air-cooled engine.

For details, use **Key # FM-1** on inquiry card on page 1.

OIL AND GREASE ABSORBENT

Waverly Petroleum Products Co. is now packaging an oil-and-grease absorbent in 25-pound bags for greater ease in handling. This smaller package is said to minimize waste in pouring and distributing the contents. This mineral absorbent, known as "Hi-Dri," is suited to use in any plant, mill, shop, factory, or warehouse where oily or greasy floors constitute a problem. It quickly dries spilled water, acids and chemicals in addition to oil and grease. It may also be used in elevator shafts, fire buckets, around oil burners and lines, on platforms made slippery by oil or grease, and in storage areas to dry up accumulations of water.

"Hi-Dri" is especially helpful in fire-hazardous locations as the material is fire-resistant even when scattered on an oil-soaked floor or loading area, and it quickly smothers flames when spread as a dry extinguishing agent. It does not pulverize readily, break down, or cake under heavy traffic conditions, offers maximum protection against slipping on most types of floors, and is harmless to the skin.

For details, use **Key # FM-2** on inquiry card on page 1.

NEW FLOOR SCRUBBING MACHINES

"Swept-back" styling is the main feature of the new line of floor machines introduced by Multi-Clean Products, Inc.

FLOOR MAINTENANCE DEVELOPMENTS

In addition to the streamlined housing, the new machines offer several other major innovations. These include dual controls which give the operator fingertip control with either hand, big wheels to facilitate pulling the machine up or down stairs . . . bumpers which encircle both top and bottom of machine, a recessed hand grip in front of machine to aid in lifting . . . and a recessed twist lock connector for cable. Electrical starting switch and twin capacitors are said to enable the heavy duty motor to start and reach full operating speed almost instantly. The gear unit is factory sealed and lubricated. The new machines are available with brush spreads of 14", 16", 19", and 22". A 3½ gallon solution tank and controls can be added to transform them into scrubbing machines.

For details, use **Key # FM-3** on inquiry card on page 1.

SAFETY TREAD COATING

Said to adhere to such base materials as steel, concrete and wood, Ring "Safety Tread Coating" can be applied by brush or squeegee and cures for traffic in a few hours. The kit, sufficient to cover approximately 50 square feet of concrete, includes a container of plastic resin, one of the activator and a shaker-top can of abrasive grit. The resin and activator are stirred together and applied to the surface. While still tacky, the coated area is sprinkled with the grit. The cured surface resembles that of fine sandpaper and, because of the powerful bond of the resin, cracking, peeling, or chipping is said to be eliminated. The coating cost ranges from 12 to 20 cents per square foot, depending upon the surface material and the area. From the Ring Chemical Co.

For details, use **Key # FM-4** on inquiry card on page 1.

NON-FLAMMABLE FLOOR FINISH

A new, non-flammable, water resistant floor finish, called "Glis-N-Yte" has been introduced by Key Products, Inc. Compounded of newly discovered chemicals, the finish offers a transparent, long wearing, tough, durable yet flexible coating for linoleum, rubber, cork, asphalt tile, vinyl, terrazzo floors as well as varnished, lacquered or enameled surfaces.

Containing a Polymer for toughness and a Vinyl for elasticity, the compound dries to a high gloss which is said not to discolor flooring or develop any harmful chemical reactions. It assures positive traction under foot and does not show foot or track marks.

The new finish should be applied to thoroughly cleaned floors. "Glis-N-Yte" may be applied with a clean mop or applicator. It is compounded to be removable, without harm to the floors or flooring, with ammonia, soap and water or with a prepared wax and oil remover. For normal maintenance, all that is needed is an occasional dusting or damp mopping.

For details, use **Key # FM-5** on inquiry card on page 1.

NEW VACUUM CLEANER HOSE

To meet a growing need for a durable replacement hose for commercial vacuum cleaners, the Durkee-Atwood Co. has come up with a flexible, lightweight, heavy duty hose designed for maximum wear resistance used "wet" or "dry." The "Dur-A-Vac" hose is fabricated from a neoprene compounded for high tensile strength, tear resistance, and resistance to abrasion, chemicals, solvents, oils, grease, water and heat. A spiral corrugated design is said to eliminate 100% collapse under extreme kinking and the pressure created by high horsepower vacuum cleaners. Corrugations also permit extreme flexibility so that the hose will bend around small radii without collapsing. The manufacturer reports that the hose cannot be crushed and will spring back if stepped on.

The hose is comparatively lightweight for ease in handling. "Dur-A-Vac" hose has a smooth finish inside and outside. It will not scratch or mar surfaces which it touches. There are no fabrication or pressure marks apparent on the hose; construction is in one continuous length. Both ends are reinforced for connection to cleaning accessories or spouts. Built for maximum durability, the hose has been field tested under a wide variety of conditions and is available now in two standard sizes.

For details, use **Key # FM-6** on inquiry card on page 1.

AUTOMATIC TRASH PICK-UP MACHINE

The "Dude" is two cleaning machines in one. By using interchangeable attachments the unit can be used for varying cleaning tasks. With an 8" wide scoop the machine can be used to clean large areas. With an 8" hose, the "Dude" can serve as a vacuum cleaner to replace hand sweeping.

The hose works easily in between seats or machines. It is large enough to pick up such assorted items as milk cartons and newspapers. The scoop attachment can be used to clean such large open areas as parking lots, factory floors and ball parks, etc. The unit is manufactured by the Pfahler Mfg. Co. and distributed through the facilities of the Arrow Sales Co.

For details, use **Key # FM-7** on inquiry card on page 1.

NEW RUBBER FLOOR MAT

Industrial Rubber Products Div. of Byron Jackson Tools, Inc., announces that the BJ rubber floor mat is now available for general industrial use. Made of heavy-duty, oil-resistant rubber, the 32" x 32" mat protects the feet from dampness, cold, slipping and electrical shock. Its built-in "shock absorbers" minimize fatigue of workers who stand for long periods of time. The non-skid mat is divided into 16 eight-inch squares which can be cut apart to surface stairs and other small areas. Several mats may be laid together to cover larger working areas.

For years this floor mat has proved its durability on oil drilling rigs. The mats have undergone continuous outdoor use from the subarctic oil fields of Canada to the boiling heat of the Middle East. They have provided sure footing on rig floors and stairs covered with oil, mud, water, and viscous drilling fluids. They have withstood the buffeting of thick-soled boots and heavy tools.

For details, use **Key # FM-8** on inquiry card on page 1.

BATTERY-OPERATED FLOOR MACHINE

A new battery-operated, self-propelled floor maintainer has been introduced by Clarke Sanding Machine Co. The new maintainer operates entirely free of electric cable or gasoline motors. Power is self-contained. It is expected to meet the field's large demand for a compact, medium size, combination scrubber-polisher and vacuum machine, especially where large areas are to be covered.

Battery Powered ClarkeAmatic Floor Maintainer

The new unit, designated the Model PS-20BP "ClarkeAmatic Floor Maintainer," is designed for small, medium and large floor areas and is reported to reduce costs. By push-button and lever control, it propels itself and meters solution to the brush, scrubs and dries—all in a single pass. It has a forward speed of 155 lineal feet per minute and has a 20 inch diameter brush. The heavy duty batteries operate for approximately six hours. The unit is furnished with an automatic battery charger. The features of the new machine expected to receive most favorable response from maintenance men are the elimination of electric cable, gasoline and propane odors and noise, plus the easy maneuverability and unobstructed vision made possible by battery power. Also, only 24 inches wide and 51½ inches in length, it is compact.

For details, use **Key # FM-9** on inquiry card on page 1.

DRUM VACUUM CLEANER

The Black & Decker Mfg. Co. has introduced a new heavy-duty vacuum cleaner for top-capacity vacuuming or material recovery. The unit attaches to any standard open-head 55-gallon drum to give a full pick-up capacity of 48 gallons dry or 40 gallons wet material. It is powered by a special, 1¼ HP motor, sealed against dirt and water, which drives a 2-stage turbine-type centrifugal fan. This "H.D. Drum Vacuum Cleaner," which cuts emptying time as much as 4 to 1 over standard cleaners is easily fitted with cleaner attachments for large-capacity vacuuming or furnace cleaning. An accessory steel dolly has also been introduced to further speed emptying and add convenient mobility with minimum effort.

For details, use **Key # FM-10** on inquiry card on page 1.

ANTI-SLIP COMPOUND

California Industrial Development Co. is introducing a new safety surfacing material. "Cidco NonSlip" is a paint-like product which can be applied to all types and contours of materials to form a long-wearing, non-sparking, highly slip-resistant surface. It employs non-abrasive particles in liquid form to provide cushioning and slip-resistance. The surfacing also acts to absorb noise. It adheres to various materials, such as: concrete, metals, wood, plastics, glass, ceramics, leather, etc., and can be used in the presence of water and a wide range of chemicals and solvents. A choice of colors and grades can be sprayed, painted, troweled, or spread with adhesive-type spreaders. Some of its many uses are for steps, wet locations, ramps, pulleys, belt friction, and rolls and surfaces of textile finishing machinery. Available from E. D. Bullard Co.

For details, use **Key # FM-11** on inquiry card on page 1.

ALL-PURPOSE MINERAL ABSORBENT

Oils, greases, liquids, and their odors, are absorbed thoroughly and quickly by the mineral absorbent, "Sol-Speedi-Dri," manufactured by Minerals & Chemicals Corp. of America. Its great "thirst" and capacity for these materials, without becoming wet itself, make it suitable for a great number of uses. Dustlessness and inertness also help to keep floors dry, clean and safe. Because it is granular and does not break down into smaller particles under traffic, the absorbent spreads easily when applied, and does not pack down. It restores wood floors long-saturated with oil or grease, and removes similar accumulations on concrete floors. Both types are restored to a new appearance and safe condition. "Sol-Speedi-Dri" can be removed by sweeping or brushing for further work elsewhere.

For details, use **Key # FM-12** on inquiry card on page 1.

PORTABLE FLOOR MACHINE

Industrial cleaning capacity is coupled with lightweight design in a new portable floor machine developed by Premier Co. for limited areas. A new concept of weight reduction and distribution is claimed responsible for improved performance. Engineering advances boost efficiency through more effective use of brush bristle ends. A 12-inch unit, the PR-12A is easier to operate because of its lighter weight, while an improved motor design offers such advantages as a 75 percent more durable gear box, permanently sealed and lubricated.

Although the unit's reduced weight and carrying handle facilitate use, an optional wheel kit is also available. The wheel assembly is attached by securing one screw. An adjusting knob, which is part of the wheel kit, enables the operator to set the handle in any position. Powered by a ⅓ hp 115-v AC constant speed motor, the unit is designed for use with attachments to clean and maintain all types of floors. Spattering can be eliminated by factory setting of the brush speed. Appearance of the machine was also improved. The base and motor housing are of aluminum, finished in blue and white enamel, while the handle is finished in chrome. The 30-foot cord and vinyl bumper are non-marking.

For details, use **Key # FM-13** on inquiry card on page 1.

CONCENTRATED LIQUID CLEANER

A new liquid cleaning agent that penetrates soil-attracting, hydro-carbon grease film by an emulsifying action is announced by the Hadco Corp. The cleaning action of "All-Kleen Supercleaner" is said to stem from an agent that causes the greasy hydro-carbon element of common soil to emulsify with water. This enables dirt and soil to be chemically loosened so that they can be flushed or rinsed away without rubbing. It can be used both for heavily soiled floors or for moderately soiled surfaces by adjusting the strength of the solution.

Prepared in concentrate form, "Supercleaner" is said to have no unpleasant odor, to be harmless to skin and clothing . . . yet capable of thorough soil

removal. The material dissolves encrusted grease from shop floors and other heavily soiled surfaces. The concentrate contains no volatile materials, hence has no flash point, the manufacturer points out, and will not harm any surface normally cleaned with soap and water. The material can be applied in desired concentrations by mopping, wiping, spray or in automatic floor machines. In some instances, it will clean by simple hand mopping.

For details, use **Key # FM-14** on inquiry card on page 1.

SAFE CLEANER FOR CONDUCTIVE FLOORS

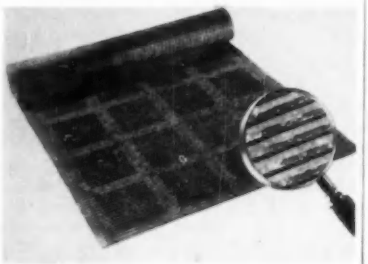
"Spal Concentrate Detergent," a product of Huntington Laboratories, Inc., has been listed by Underwriters' Laboratories, Inc., as a safe cleaner for conductive floors. The detergent is part of a complete maintenance program for conductive floors which includes a cleaner and a wax, both listed by Underwriters'. Underwriters' tests prove "Spal" remains with proper limits for safety when used on conductive floors. It cannot form an insulating film of lime soap or precipitate insulating oils or fillers and is suitable for use on conductive floors to remove old wax or for routine cleaning.

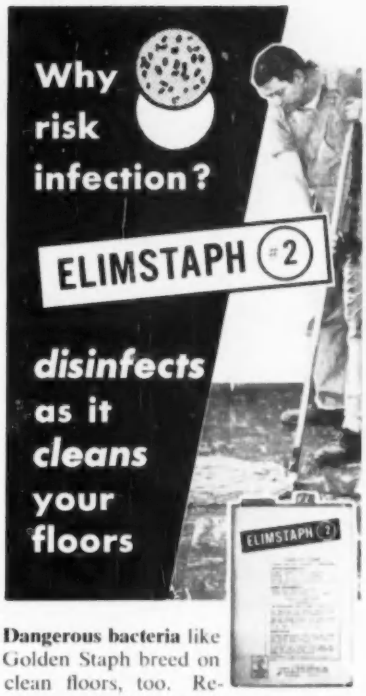
For details, use **Key # FM-15** on inquiry card on page 1.

GREASE-PROOF MAT

A grease-proof, nylon reinforced, cross ribbed runner matting, known as "Shadow-Tone," has just been announced by American Mat Corporation. An attractive, modern "two-tone" appearance gives the runner an extra dimensional effect. While its toughness assures long service, a low price can be maintained. Available in ebony black, this new runner is 36" wide, 5/32" thick, and comes in lengths of up to 60 feet.

For details, use **Key # FM-16** on inquiry card on page 1.





Dangerous bacteria like Golden Staph breed on clean floors, too. Redispersed in the air, disease germs can strike *anyone, any time.*

Play it safe. Specify ELIMSTAPH #2 as your daily cleaner. Its phenol coefficient of 33 (certified by U. S. Testing Co.) is 3 to 6 times more powerful than most germicides. Penetrates the wall, disintegrates the entire germ cell from within. *Residual,* it retains killing efficiency as long as it remains on the floor.

Saves you money. You use only one ounce per gallon of water. Cuts labor, too. Does a superb cleaning job, disinfects and deodorizes in one application.

Besides floors, apply ELIMSTAPH #2 on walls, doors, furniture, toilets, showers. Use it to disinfect garbage cans, mops, pails, brushes. Don't wait. Mail the coupon for full data on this amazing product.

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☐ Please Rush Full Information on ELIMSTAPH #2

Name
Firm
Address
City Zone State

(Use Key # A-10 on Inquiry Card on page 1)

NEW SUCTION CLEANER-BLOWER

A new powerful, suction cleaner-blower for commercial use is announced by Ace-Sycamore, Inc. Model 201 is designed for all types of commercial jobs such as general offices, reception rooms, company restaurants, hospitals, etc. . . . wherever quiet cleaning is a "must." The new unit is highly mobile and features a swivel top for easy, round-the-room cleaning, and extra large capacity disposable dust bag. It is powered by an oversized motor (¾ H.P.) that creates a tremendous suction. An 8-piece set of cleaning attachments is available.

For details, use **Key # FM-17** on inquiry card on page 1.

FLOOR SURFACER

A new structural surfacing material, "Permatop," which resists industrial corrosion, and literally "welds" to new or old masonry, has been put on the market by Permagile Corp. of America. The surfacer provides a mineral aggregate and plastic binder in a single package. It can be used to rebuild masonry floors in factories, canneries, laundries, restaurants, stores, and other buildings, and for repairing heavy-duty roadways, walkways, and ramps.

"Permatop" consists of a resin base, liquid reactor, and a chemically treated aggregate. The pre-measured materials, mixed at the site, are ready for immediate use. Applied very much like concrete, the mixture can be troweled to a smooth skidproof surface. It can be featheredged. Outstanding feature of the product is that it adheres to any clean, cured masonry surface, old or new. The laborious chipping usually required in masonry floor and roadway repair is eliminated, since no mechanical interlock is required. It may be applied in thicknesses of 1/16 in. or more. Treated areas can be exposed to use in a few hours and are said to be completely water- and weather-proof, and to be unaffected by common alkalis, solvents, salts, sugars, oils, greases, mild acids and other chemicals which attack concrete. Available in 17½-pound and 87½-pound containers. Colors offered are red, green, gray, and neutral.

For details, use **Key # FM-18** on inquiry card on page 1.

NEW BACTERIOSTATIC FLOOR WAX

A completely different water emulsion floor wax that helps to control the spread of infectious bacteria on floor surfaces—"Super Westwax," has been announced by West Chemical Products, Inc. This new bacteriostatic wax blends the characteristics of yellow Carnauba wax, enabling the material to be used on white floors without fear of discoloration, with that of Ludox, which provides slip-resistance. The wax also contains Miriter, a synthetic resin designed to produce a hard, glossy, durable finish. This new floor wax can be used on all floor surfaces for industrial and institutional uses. It provides a high initial gloss without buffing, is scuff and water-resistant and, at the same time, is easily removed when desired. It may be damp mopped and buffed repeatedly for economical maintenance. Under normal conditions it will withstand wetting without spotting.

For details, use **Key # FM-19** on inquiry card on page 1.

RUG SHAMPOO WITH SOIL RETARDANT

A new rug and carpet shampoo, designed for cleaning and removing dirt, deposits a chemical, which upon drying, becomes a soil retardant. "Gainmor" rug and carpet shampoo with soil retardant is based upon synthetic detergents . . . it contains no soap . . . and is formulated to obtain quality cleaning results. Its cleaning action "pulls" dirt, grime and grease from the rug. Simultaneously tiny particles of soil retardant fill the fibers of the rug leaving a soil resistant coating on the surface of the pile. The resistant properties remain as long as six months, depending upon the amount of traffic or until the rug is washed or shampooed again. The compound contains a supply of synthetic detergent that "floats" dirt and soil and emulsifies grease for easy removal from rugs and carpets. After cleaning, any excess retardant is easily vacuumed out. The cleaned rugs and carpets appear fresh and color bright, and best of all they are said to stay that way longer. The shampoo may be used by hand or machine operation. Guaranteed safe on any color-fast rug. Its action will not harm fabrics or dyes. Suitable for wall-to-wall carpeting and on-location cleaning. Available from the Uncle Sam Chemical Co., Inc.

For details, use **Key # FM-20** on inquiry card on page 1.

NEW LINE OF POWER SWEEPERS

Clarke Floor Machine Company will introduce its new line of power sweepers this month. The new line will include both walking and rider types ranging in sweeping capacity from approximately 35,000 sq. ft. per hour to 125,000 sq. ft. per hour. The photograph illustrates the Model CS-27, a walker type unit for either indoor or outdoor use and, due to its compactness, works well in congested

areas. Equipped with side broom, it sweeps right up to walls, etc. The new line will feature finger-tip controls, great maneuverability as well as ease and speed of operation.

For details, use **Key # FM-21** on inquiry card on page 1.

FLOOR SEAL FOR HEAVY TRAFFIC AREAS

A highly abrasion-resistant floor seal has been developed by the G. H. Tennant Co. It reportedly lasts twice as long under heavy traffic as most heavy-duty finishes. Known as "Tennant No. 15 Heavy-Duty Floor Seal," the material has been under development and testing for 5 years. It is said to provide a light, semi-lustrous film that does not darken with age.

Chief characteristics include high resistance to rubber and friction burns, abrasion, moisture and dirt penetration. Since it is alkali-resistant, it is effective on concrete and wood floors. The new seal is made from an epon base. It is reportedly fast-drying and does not require a separate primer. Three coats are recommended. The new seal is suited to heavy traffic areas in bakeries, textile mills, industrial plants and schools.

For details, use **Key # FM-22** on inquiry card on page 1.

"WINTERIZER" FOR ASPHALT SURFACES

Application of "Jennite J-16" to provide winter protection for asphalt and black top surfaces is recommended by Maintenance Inc. When used in a liquid coating over new or old asphalt pavements, it seals out moisture and is reputed to prevent water absorption. Consequently, the cracking and surface crumbling frequently caused by accelerated thawing and freezing cycles are reduced.

Coated surfaces are also said to be easier to clear of ice and snow than untreated pavements. The manufacturer claims that the black treated-surface attracts heat from the sun and lessens the degree of ice adherence, thus speeding up shoveling or plowing. Recommended for use on driveways, parking lots, ramps, loading docks and traffic aisles, it is said to be suitable for gasoline station and garage pavements, aircraft fueling and parking aprons, runway ends and taxiways.

For details, use **Key # FM-23** on inquiry card on page 1.

NEW VACUUM CLEANER

The newest piece of equipment in the "Turbo-Vac" line, Model 75, has recently been put on the market by The Kent Company, Inc. A full-time vacuum and blower, offering a big capacity tank, 1⅔ bushels or 10 gallons, Model 75 is equipped with an auto-lift, which by a touch of the foot releases the container immediately. The tank is made of a heavy gauge steel in a seamless, one piece construction, with an interior lining to prevent rusting. This machine is equipped with a 1 H. P. by-pass motor housed in a removable power unit, which can be used in combination with the "Drum-Seal" for use in extra capacity boiler operations.

Model 75 features a tricycle mounting, two large 12-inch ball bearing mounted wheels and a ball bearing swivel caster in front. Its by-pass motor is cooled by a separate current of air, and is protected against dust, dirt, and water. The filter of this model has an area of 1100 sq. in., while its air volume is 147 c. f. m. The machine is 35¾" high and 24" wide and weighs 85 pounds to handle all maintenance cleaning operations, from rugs, carpets, and wall, to wet and dry floors.

For details, use **Key # FM-24** on inquiry card on page 1.

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Maximum Coverage · Minimum Maintenance · Consistent Dependability

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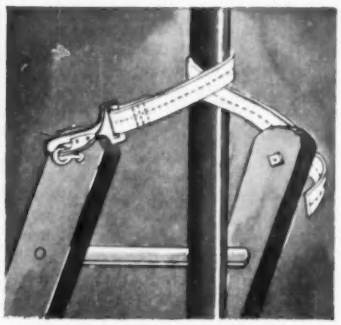
(For details, use Key # A-11 on card on page 1)



SAFE-HI LADDER LASH NEW STEP UP IN CLIMBING SAFETY . . .

Can Be Used on Horizontal or Vertical Poles or Pipes!

Knotty ladder ropes have finally come to the proverbial "end of their rope" since the invention of Ladder Lash, latest product of Rose Mfg. Co. The Safe-Hi Ladder Lash, a parachute web strap, solidly anchors ladders for high-climbing workmen, ending the hazards of wobbling, tottering ladders. Ladder Lash will anchor on poles up to 20" in diameter making it ideal for utility pole use as well as any other horizontal or vertical poles or pipes.

No Groping in Mid-Air

Ladder Lash does away with top-rung confusion. In one quick motion the strap is wrapped around any horizontal or vertical pole, the forged steel snap is clipped into the swivel eye bolt and the strap is pulled through the adjustment slide until taut. A simple device, Ladder Lash is easily attached to any ladder. Workmen are sure to like the dependable safety features of the Safe-Hi Ladder Lash.

Safe-Hi Pole Grip Adds Extra Safety Feature

Use Ladder Lash and Pole Grip together for the extra measure of safety. Safe-Hi Pole Grip, already favored by "Higher-up's," is made of 4-ply web strap 26"x1¾" wide with a center section of neoprene tread for super gripping strength on vertical poles.

#632—Pole Grip #645—Ladder Lash

Safe-Hi ROSE MANUFACTURING COMPANY
2700 W. Barberry Pl., Denver 4, Colo.

(For details, use Key # A-12 on card on page 1)

NEW COMMERCIAL VACUUM CLEANER

The new Series 140, "Tornado" vacuum cleaner was designed to have the lightness (24½ lbs.) of a household cleaner with all the ruggedness of a commercial vac. With a recessed handle at the top, it can be carried even by a very small woman. Yet, with the water shut-off attachment, it picks up water or suds to leave the floor bone dry.

The machine measures 20" tall by 16" diameter, and has a large (350 sq. in.) internal filter. Power is supplied by a ½ H.P. AC/DC by-pass motor, operating a 2-stage turbine-type fan. The unit is available for 115v or 230v operation. Water lift is 62", air velocity, 340 MPH and volume, 123 CFM. Tank of the new 140 is 7½ gal. capacity. A complete set of attachments is available, including a squeegee, wall nozzle, upholstery nozzle, crevice tool, and dusting tool. The 1¼" hose is made with braided saran cover. The cleaner is adaptable and has sufficient power to use 1½" or 2" commercial hose and attachments. Available from Breuer Electric Mfg. Co.

For details, use **Key # FM-25** on inquiry card on page 1.

"DUST-PROOFING" COMPOUND

A new easy-to-apply, economical, one-coat liquid treatment to prevent "dusting" of concrete floors is announced by Maintenance Inc. Offered under the tradename "Radon 401," it is said to penetrate deeply, bind small concrete particles together and retard progressive breakaway under traffic. It is also reputed to fill surface capillaries with a tough, resilient plastic rubber.

"Radon" is applied by pouring it over a small area of floor surface and spread with a long-handled, soft-bristled floor sweep or lamb's wool applicator. Maximum penetration is assured by a massaging action with the applicator. One gallon is said to condition 250 to 400 sq. ft. depending upon porosity and texture of the surface. Treated floors may be opened to traffic 3 hours after application. The liquid is said to provide floor surface resilience, will not chip or peel, is water resistant, does not darken with age and has a non-skid property to reduce dust hazards to machinery, instruments, equipment and merchandise. Available in 1-gallon cans, 5-gallon pails, 30 and 55-gallon drums.

For details, use **Key # FM-26** on inquiry card on page 1.

IMPROVED FLOOR MACHINES

Increased efficiency, resulting from a reduction and redistribution of weight, is claimed for the Premier Company's new line of heavy-duty floor maintenance equipment. Cleaning and polishing efficiency was boosted 25% by using the maximum machine weight that will allow brush bristles to perform without bending. Balanced weight distribution also saves up to 50% on brush wear and makes the machines easier to operate and transport, as do larger wheels, which can be raised or lowered at the touch of a toe.

The new design is reflected in the appearance of Premier's three largest models, 15, 18 and 22 inches. The rectangular motor housing in blue and gold has a perforated front shield, set off in white vinyl, to improve ventilation and appearance. Chrome and baked enamel finishes are used on various parts of the machines to give a cleaner appearance. Non-marking white vinyl is used for the bumpers. Handles are adjustable.

For details, use **Key # FM-27** on inquiry card on page 1.

POWERED FLOOR SWEEPER

A new motorized floor sweeper has been developed by the Parker Sweeper Co. The new unit sweeps up to 50,000 square feet per hour. Controls are at hand level. The hopper can be emptied and replaced in seconds. The sweeper

collects dirt, trash, paper, scrap—all debris. It is available in 20" and 28" sweeping widths. "Rota-Sweep" brushes attach to side of sweeper to get next to walls and machines and bring dust and debris to the front of the sweeper. Each brush adds 6 inches to sweeping width.

For details, use **Key # FM-28** on inquiry card on page 1.

NEW LOW-COST VACUUM

Contemporary styling and operating efficiency in a smaller, full-powered vacuum, have been combined in the new model 5-D, industrial "Vac-It." The unit features a new concept in head design; diffusing exhaust air downward around the complete circumference of the machine, from beneath a solid cast head ring. The head assembly contains a ¾ horsepower, permanently lubricated motor, mounted in rubber for quiet operation and protection from impact damage. Flush latches prevent snagging and provide faster removal of head and filter assembly. Its heavy gauge steel tank has a recovery capacity of five gallons, has a free-swivel hose connector, splash-free intake deflector, and is smooth to allow easy cleanout. The one piece aluminum dolly has big wheels, twin front casters, thick, white wrap-around bumper strip, and a rubber-grip handle to permit maximum maneuverability over stairs, carpeting, and around furniture. Color styling includes turquoise, white, and "mirror-polished" aluminum models. Twenty-foot electrical cord, hose and attachments are furnished. Manufactured by Doyle Vacuum Cleaner Co.

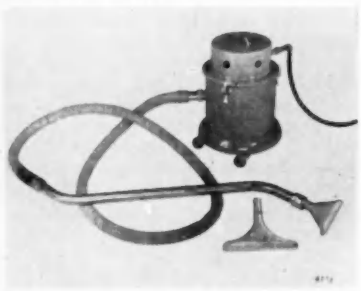
For details, use **Key # FM-29** on inquiry card on page 1.

SKID RESISTANT FLOORING

A scientifically formulated powder and a special liquid binder have been developed by the Stonhard Company, Inc. for resurfacing floors, stairs, ramps, metal cat-walks, and stair treads. Called "Stoncap," the product has slip resistant qual-

ities designed by the manufacturer to stop floor accidents. Long lasting, it is resistant to greases, oils, fats, brines, and alkalies. Its resiliency leads to added comfort while walking or standing and is said to cut down fatigue. Lightweight, yet durable, the resurfacer is ready for foot traffic five hours after installation. Trucks may be rolled on the surface within twenty-four hours. "Stoncap" may be applied on wet surfaces and is available in five pleasing colors: maroon, gun metal, forest green, light green, and light grey.

For details, use **Key # FM-30** on inquiry card on page 1.



NEW AIR POWERED VACUUM CLEANER

A unique industrial type vacuum cleaner, completely air powered, has been announced by the Laukhuff-Pratt Mfg. Corp. The compact, lightweight unit operating off of any compressed air source, creates a powerful suction to pick up deeply embedded dust and dirt. (2" of vacuum at 60 lbs. air pressure to 4" of vacuum at 90 lbs.) Being air-operated, with no electric motors, switches or wiring, it is completely safe in wet, dusty or explosive atmospheric conditions. Easy rolling caster wheels, plus its lightweight, enable the cleaner to be transported, handled and maneuvered with ease.

For details, use **Key # FM-31** on inquiry card on page 1.

NEW 19" FLOOR MACHINE

A toe-actuated adjustment to raise or lower handle to suit operator's height

or provide additional leverage for moving over thresholds is an outstanding feature of the new 19-inch floor machine announced by Cassidy Products, Inc. A heavy-duty one H. P., 115/230 V. 60 cycle motor powers this latest addition to Cassidy's "Clean-O-Matic" line.

Features of the 19" model include: twin tube handle to absorb the tiring forces of torque; five inch semi-pneumatic, heavy-duty ball bearing wheels; ball bearings throughout; non-marking bumpers. The brush gives a full 19-inch diameter contact with the floor, the manufacturer reports. Height from floor to motor top is 11½ inches. A full line of attachments provides for scrubbing, polishing, buffing and rug shampooing. Each machine is equipped with 40 feet of heavy-duty grey cord.

For details, use **Key # FM-32** on inquiry card on page 1.

HEAVY-DUTY FLOOR PATCHING MIXTURE

A quick, wear-resistant emery base, non-resilient floor patching material has been introduced by the Walter Maguire Co. The material permits fast concrete floor repairs without danger of softening, rutting out or poor adhesion. Called "Emeri-Quikpatch," the new mixture also eliminates absorbency. The compound cures and becomes serviceable overnight. A special plasticizer gives the product excellent bonding properties, the company said. It does not have an asphaltic or latex base to cause softening and rutting out. The toughness and hardness of the emery aggregate makes it long wearing. Easy to apply, "Emeri-Quikpatch" is available in 105-pound fibre drums. It requires no additives except water. Complete mixing and application instructions are included with each package.

For details, use **Key # FM-33** on inquiry card on page 1.

FOILLE.
FIRST AID SPRAY *FOR BURNS*

FOILLE — the antiseptic, analgesic dressing — is indicated for fast, effective relief of pain from burns, sunburn, cuts, wounds and abrasions. Areas can be sprayed thoroughly to provide prompt patient comfort and eliminate painful swabbing. FOILLE fights infection and promotes healing. In 3 oz. and 10 oz. spray.

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ORDER NOW from your supplier
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THE POSITIVE
LADDER SAFETY DEVICE
LOCKS-IN-A-NOTCH!

Prevents death and injuries from falling. If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches —distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 11 years. Approved by Safety Engineers and Government Agencies throughout country. Patented. Manufactured only by

SAFETY TOWER LADDER CO.
1024 Burbank Blvd., P.O. Box 1052
BURBANK, CALIFORNIA

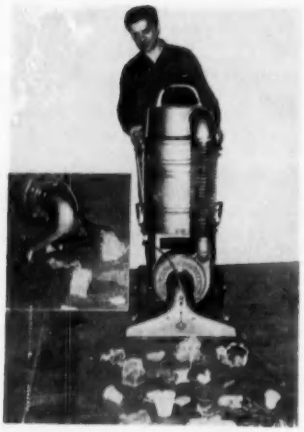
(Use Key # A-13 on Inquiry Card on page 1)

RIDER-TYPE SCRUBBER-VACUUM

A rider-type combination scrubber-vacuum machine capable of cleaning up to 64,500 square feet of open floor area an hour has been introduced by Finnell System, Inc. Designed for industrial users which have a minimum of 50,000 sq. ft. areas to be cleaned, the 72-F will remove dirt and grime by the action of four 18-inch brushes operating at 180 r.p.m. under variable pounds of pressure on the floor. The brushes agitate a cleaning solution dispensed from a 150-gallon solution tank. A giant-sized V-shaped squeegee funnels loosened dirt into a 150-gallon pickup tank via a 75 c.f.m. vacuum. The unit is powered by an air cooled 27 h.p. gas or propane engine. All brush and squeegee movements are actuated by a hydraulic power take-off system controlled by the operator.

With an over-all length of 114 inches and a width of 72 inches, the 72-F can turn in its own length and can operate effectively in a 10-foot wide aisle.

For details, use **Key # FM-34** on inquiry card on page 1.



NOZZLE ATTACHMENT PICKS UP BULK MATERIALS

Handling Devices Co. announces a new "Litterdoor" nozzle attachment for its "Floormobile" suction floor cleaner so that the machine now picks up bulky trash such as coffee cups, milk cartons, tags, balled yarn and paper, metal turnings, and plastic, rubber and steel scraps as easily as it does dust and dirt. The attachment is part of the pickup nozzle and is opened by remote control. As "Floormobile" cleans a floor, the operator can open the nozzle without stopping or slowing down. The cleaning unit is said to be a powerful and highly maneuverable suction floor cleaner. It cleans at the rate of 20,000 square feet an hour to clear floors of dirt, trash and dust, in all directions. Because of its special design and suction cleaning action, it cleans without stirring dust into the air.

For details, use **Key # FM-35** on inquiry card on page 1.

inside the trade

PITTSBURGH PLATE GLASS CO. has established a new wholly-owned international subsidiary to be known as *Pittsburgh Plate Glass International S.A.*, a Swiss corporation with its home office in Geneva, according to an announcement by *Edwin T. Asplundh*, chairman of the Board of Directors. Immediate plans involve licensing, marketing, and investment functions; it is expected the overseas operations of Pittsburgh Plate Glass International eventually will include facilities for the production of glass, paints, chemicals and related products.

Havana, Cuba, has been selected as a branch office headquarters of the international subsidiary for the administration of sales of glass, paint and related products, and will be in service early this year.

After thirty-three years of leadership in the air filter and dust control industry, *John Hellstrom*, Vice President of *AMERICAN AIR FILTER CO.*, retired November 1. He was Director of AAF's Products and Marketing Division, and Manager of the American Air Division (Louisville manufacturing division).

Hellstrom was President of the Midwest Air Filter Company at the time of its merger in 1926 with three other firms to form the American Air Filter Co. He later became Vice-President in charge of Dust Control products and helped pioneer the acceptance of the Roto-Clone dust collectors.

THE MAINTENANCE CO., INC., now in its 61st year, has moved from the company's six-story building on West 42nd Street, Manhattan, its location since 1921, to its new, modern plant at 10–40 45th Ave., Long Island City. The company is well known as an electrical and mechanical maintenance contracting company.

A line of photo-electric and other electronic devices for control, safety, counting, and measuring applications, has been announced by *CLARK CONTROLLER COMPANY*, Cleveland. Clark Controller is a leading designer and manufacturer of standard and specially-engineered industrial and commercial control devices and systems.

Included in the new line are light- and resistance-sensitive relays and devices for temperature and torque measurement, counting, smoke detection, and personnel and equipment protection. These products were formerly made and marketed by *Electronics Controls Corporation*, Detroit. Electronic Controls will continue to manufacture the products for Clark Controller Company.

Expansion of its Engineering Laboratory—designed to function as a clearing-house for technical information in the building products field—has been announced by *Alvin S. Baer*, General Manager of the *Building Products Division of L. SONNEBORN SONS, INC.*

The Engineering Laboratory, which covers approximately 10,000 square feet of office and laboratory space and exterior field testing areas, is located at Sonneborn's Nutley, N. J., building products plant, where many building products for maintenance and new construction are manufactured. The laboratory is built to permit research work indoors or out, in conformity with the standards of the American Society for Testing Materials.

Mr. Baer said that the laboratory would make its research facilities and personnel available to architectural, engineering, contracting, or building trade specialists anywhere in the United States within the framework of the laboratory's available workload. He added that because local building materials have a tendency to behave in different ways, interested companies or individuals were invited to send to the laboratory quantities of such local building materials for field testing by Sonneborn.

Announcement that *TURCO PRODUCTS, INC.*, manufacturer of industrial chemical processing compounds, has broken ground in Wilmington, California, 20 miles south of Los Angeles, on a 66,000 square foot, million dollar National Headquarters has been made by President *S. G. Thornbury*. The new facility, scheduled for completion next summer, consists of an Administration Building and Executive Wing, a Research Center and an Engineering Service Building. It will be contiguous to Turco's modern "push-button" manufacturing plant, which was built on the site some three years ago.

H. J. Mackin, district manager at New York City for *GOODYEAR TIRE & RUBBER COMPANY'S Industrial Products* division since 1939, has been promoted to assistant manager, Eastern Region, retaining headquarters at New York City. *B. E. McClelland* has been moved up from assistant to manager of the division's New York City district and *H. L.*

Jinkerson, a field representative at Cleveland, Ohio has been promoted to assistant manager at New York City.

O. A. Schilling, sales manager for Goodyear's Industrial Products division, announced also that the firm's district operations at Boston are now administered from the New York City office. *G. M. Landon* will serve the Boston district as field representative with administrative duties handled by the enlarged New York district office.

Announcement has been made by *BEMIS BRO. BAG CO.* that *T. I. B. Gray* of the General Personnel Department, St. Louis, has joined the company's General Sales Department. His first assignment will be the development and promotion of the explosives bag business under the immediate direction of *G. W. Finlay*, supervisor of multiwall sales.

The appointment of *Robert D. Mulhall* as Western regional sales manager with headquarters in San Francisco has been announced by *MEDICAL SUPPLY COMPANY*, Rockford, Illinois, manufacturers of unit system first aid and other first aid supplies for industry. Mulhall brings to his new position a wealth of experience in the industrial safety field. For several years he has been a representative for a major safety equipment distributor and prior to that spent seven years as a safety engineeer in the insurance field.

THE ELECTRIC STORAGE BATTERY CO. is moving its corporate general offices and the headquarters of its *Exide Industrial Division* to new quarters this month, vacating the space they have occupied since 1950 in the Robinson Building, 15th and Chestnut Streets, Philadelphia.

First to move was the administrative, sales and accounting departments of the Industrial Division. Since October 23, they have been located at the Philadelphia plant, Rising Sun and Adams Avenues.

The Corporate offices were moved October 31 to the eighth floor of Philadelphia's newest office building, No. 2 Penn Center Plaza at 15th Street and Pennsylvania Boulevard.

The name of *Christensen Machine Company*, Racine, Wisconsin, has been changed to *M-D BLOWERS, INC., Earl L. Fester*, general manager, announced. The company will continue to operate as a subsidiary of *Miehle-Gross-Dexter, Inc.*, Chicago.

Thomas B. Martin has been appointed to the newly created post of advertising and merchandising director for the *Service Products Division* of *S. C. JOHNSON & SON, INC.*, Racine, Wis. Martin will direct merchandising and advertising efforts for maintenance products, industrial coolants and lubricants, furniture finishing compounds, and a new chemical specialty called Porelon. He joined the company as a salesman in 1947, served as a district sales manager for maintenance products in Philadelphia from 1953 to 1955. Most recently he has been sales training director of the Maintenance Products Department.

FINE ORGANICS, INC. Executive and Sales offices are now located in the company's plant at 205–225 Main St., Lodi, New Jersey. According to *Nicholas M. Molnar*, president, this move will provide greater efficiency and improved service to customers.

Two vacancies on the Board of Directors of the *FIRE EQUIPMENT MANUFACTURERS ASSOCIATION* were filled during a meeting of this national trade group in October. Newly-appointed FEMA board members are *A. C. Trautwein*, vice-president in charge of marketing, The Fyr-Fyter Co., Dayton, Ohio, and *Stewart Boal*, president of Randolph Laboratories, Inc., Chicago, Illinois.

THE ISOCHEM RESINS CORPORATION has announced the appointment of the *Mechelec Sales Company* of Medford, New Jersey, as its Sales Representative in the Mid-Atlantic territory. This territory includes the Southern half of New Jersey, Delaware, Maryland, the District of Columbia, and the Eastern half of Pennsylvania. Mechelec will handle the entire line of epoxy and polyester coating, potting and casting resins and epoxy adhesives, as well as the companion line of clean-up and stripping agents for resin users. *Edward Penberthy*, will be the Chief Sales Engineer for the territory.

Safety Appointments

John W. Baum has been appointed supervisor of health physics in Safety Services at Allis-Chalmers. He will coordinate the general safety program at Allis-Chalmers Greendale Laboratories and also specialize in safety as it pertains to the company's nuclear power operations.

Baum holds a bachelor of science degree in electrical engineering from State University of Iowa and a master of science degree in radiation biology from the University of Rochester. He was associated with the Hanford, Washington, Engineering Works and the Armour Research Foundation in Chicago before joining Allis-Chalmers. He has authored and co-authored a number of scientific papers, and lectured and conducted seminars on various aspects of radiation safety.

Baum is a member of the Health Physics Society, Chicago Radiation Physics Society, and the Institute of Radio Engineers.

Richard M. Dayoub has been appointed Director of Ground Safety for 20th Air Division (Central Air Defense Force, ADC) at Richards-Gebaur Air Force Base, Missouri. For the past three years, Mr. Dayoub has been Safety Director for the Veteran's Administration at Dayton, Ohio. During this time, the VA accident frequency at Dayton dropped from 14.3 to 3.8. Prior to this position, he was a Safety Engineer at the Atomic Energy plants at Portsmouth, Ohio and the Savannah River Project in Georgia.

Mr. Dayoub was active in Federal Safety Council activities at Dayton, serving as Secretary-Treasurer.

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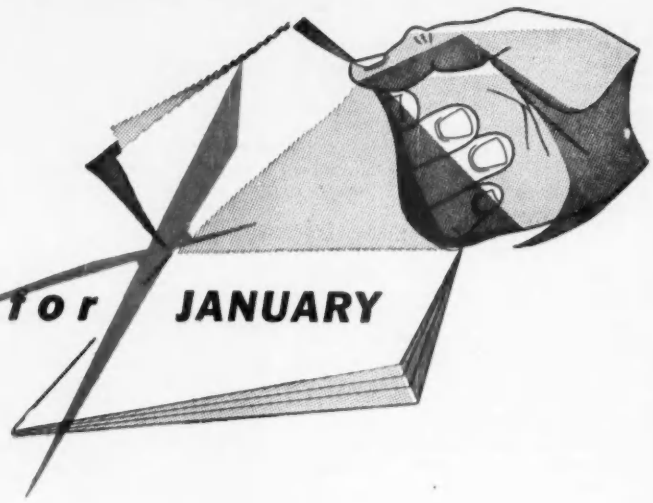


what's new for JANUARY

NEW GATE AND ENCLOSURE GUARD

(Use Key # 695 on Inquiry Card on page 1)

SEARJEANT METAL Products, Inc. has announced the production of a new gate and enclosure guard. Called the "Universal Gate and Enclosure Guard," the unit is said to help prevent accidents and speed up production. Only one guard on each press protects operators during blanking, secondary or hand feed and automatic operation work.

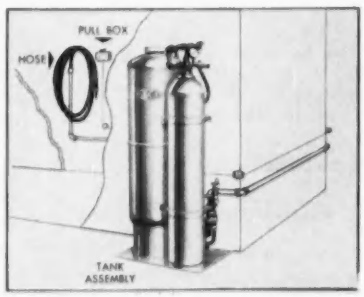
The guard and its electro-pneumatic circuit can be controlled by a switch which can be set for the various types of operations to be performed. For instance, when hand feeding is being done the gate is actuated for each stroke of the press. Thus, the operator is afforded an unobstructed area in which to feed the press while the gate works up and down with each cycle. For strip feeding, the gate is held down all the time. For automatic operation, a second switch is thrown to cause the gate to stay down and also to keep the press in continuous motion until stopped.

New features include: guard swings aside for die changes, electric interlock controls, an air line which feeds a 4-way solenoid valve, regulator and gauge for air line pressure, neoprene bumper for striker board, no relays or moving parts in the control panel box and a wired electric foot switch for instantaneous electrical response, etc.

STATIONARY DRY CHEMICAL SYSTEMS

(Use Key # 696 on Inquiry Card on page 1)

COMPLETE REMOTE control from a distant hose site pull box is one of several features of the new stationary dry chemical hose line systems developed by the C-O-Two Systems division of The Fyr-Fyter Co.



A single pull handle at the hose site simultaneously opens the valve, pressurizes the tank, and fills the system with fire-killing chemical powder. Other features include space-saving installation, improved nozzles and valves, and use of Formula H chemical powder.

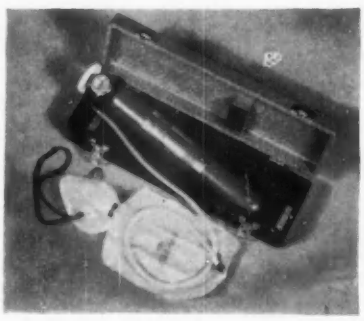
Three models are offered—150, 300, and 500 pound dry chemical capacity—in compact "package" designs requiring a minimum of floor space. Each model carries Underwriters' Laboratories and Factory Mutual approval. Dry chemical powder is used for the protection of flammable liquids and electrical equipment. These systems will find applications in oil refineries, drilling rigs, power generating stations, and as both fixed and truck-mounted apparatus for industrial plants.

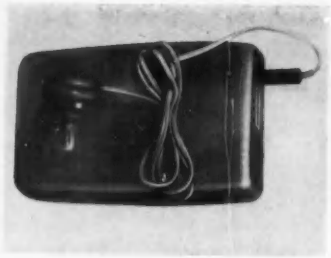
NEW EMERGENCY OXYGEN KIT

(Use Key # 697 on Inquiry Card on page 1)

"EMERGOX," a new portable kit to furnish emergency oxygen, combines a number of features to make it suitable for use in industrial plants, on commercial vehicles and in the field. Emergency oxygen is needed for the relief of heart attack victims, in strokes, shock, asphixiation, drowning, to combat fatigue or exhaustion, etc. The new kit is said to be able to withstand such rough treatment as bumping, banging, exposure to direct flame, etc. without danger.

The kit's operation is said to be practically fool-proof. Simply slip on a face mask and turn a control knob. The correct flow of oxygen is controlled automatically. The unit is completely portable, weighs 2½ lbs. and is only 12" long. It supplies oxygen for 20 minutes, long enough to summon further medical aid. The "Emergox" twin unit supplies up to 60 minutes of oxygen. Made by Emergox, Inc.





RADAR BEAM DETECTOR

(Use Key # 698 on Inquiry Card on page 1)

A DETECTOR of dangerous high-intensity radar beams, that fits in a shirt pocket, warns engineers and technicians when they are in the beam. The "Erickson Microwave Radiation Detector" has a neon light and earphone both of which give ample warning to personnel before exposure to the dangerous radar beams becomes a critical health hazard. The intensity of the sound in the earphone is governed by the nearness of the individual to the radar transmitter. Operating at all frequencies, it will detect a powerful operating radar one-half mile away. It is also a useful tool for locating leaky waveguide joints. From Erickson Products Co.

BATTERY POWERED ELEVATING PLATFORM

(Use Key # 699 on Inquiry Card on page 1)

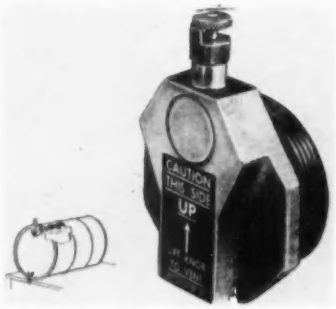
THE STRATTON Equipment Co. has developed a versatile lifting platform. The "Hydro-Hi Lift" unit is designed for the maintenance and cleaning of lighting fixtures, cleaning and painting of walls, windows and stockroom operations where high and frequent or continuous lifting is required. The unit which is completely controlled from the six foot platform has a 400 lb. capacity and turns 360 degrees either clockwise or counter-clockwise. Easily steered, moved and braked by a pushbutton, with power furnished by a heavy duty battery with a built-in charger, the lift is available for heights up to 25 feet.

DRUM VENT FOR END BUNG INSTALLATION

(Use Key # 700 on Inquiry Card on page 1)

DESIGNED TO provide protection for 55-gallon steel drums with the 2" bung opening located in the head when drums are placed in a horizontal position for storage or dispensing, this new vent prevents drum rupture and loss of contents even when drum is surrounded by fire. Automatic pressure relief against interior vapor build-up is provided by an automatic valve which opens at 5 lbs. p.s.i. to relieve interior pressure. A fusible plug melts at 135 degrees F. to provide emergency pressure relief in the event of fire.

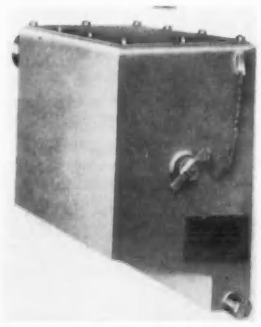
The vent has a thick gasket seal which compresses when screwed into the threaded bung opening to secure a tight, leak-proof connection. Pressure-vacuum relief passages are located above the full liquid level of the drum to assure against leakage. All vent passages are covered by a perforated metal fire baffle to prevent propagation of fire and explosion into the drum. A manually operated, vacuum relief valve provides for full free-flow when withdrawing liquids. Manufactured by the Protectoseal Co.



NEW CONDITIONER FOR DIESEL EXHAUST GASES

(Use Key # 701 on Inquiry Card on page 1)

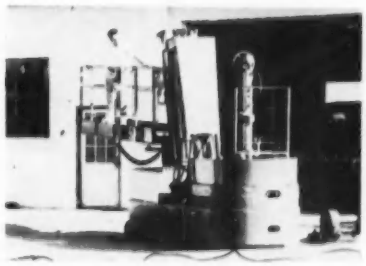
A NEW EXHAUST gas conditioner which allows diesel-powered equipment to operate underground in metal and non-metallic mines and other confined areas has been introduced by National Mine Service Co. The unit cools exhaust gases from as high as 1300°F to a maximum of 160°F and removes the solid particles of combustion which normally appear as smoke. The "National Mine Exhaust Gas Conditioner" operates on a venturi-pressure principle. It is a water-batch unit in which no chemicals are used. Energy of the exhaust gas stream is used for intimate mixing with water and for separation of water from purified and cooled gas. Performance is such that water losses are practically limited to those of evaporation. Loss in excess of normal evaporation is between ¼ and ½ percent.



DISPOSABLE PLASTIC CAPS AND HOODS

(Use Key # 702 on Inquiry Card on page 1)

NEW LIGHTWEIGHT disposable caps and hoods of soft plastic are being offered by B. H. Jordan Co. The cap can be worn as an insulation under a rigid helmet by machine operators to keep their hair out of moving parts, by processors to prevent loose hair dust and dandruff contamination, a disposable shower cap for use in industries where contamination requires employee showering. The hoods are designed to be worn as protection for the head and face against hazards which do not involve heavy impact. Being windproof, the hoods are usable for outdoor wear under regular headwear to protect the normally exposed areas of neck and ears as well as from nuisance dust, acid and paint spray. These hoods are made of acid-resistant water- and weather-proof polyethylene.



ELEVATING MAINTENANCE PLATFORM

(Use Key # 703 on Inquiry Card on page 1)

ANOTHER STEP toward greater versatility and convenience in maintenance operation has been made by the introduction of the "Model 40 Lift-A-Loft." The unit offers a feeling of safety and stability while reaching 15 feet over obstructions and while extended to a platform height of 40 feet. Designed to accommodate a 500 lb. platform load, the unit has a low center of gravity, with a safety factor in excessof 5 to 1.

Completely self-propelled, the platform requires only one man to operate. From the operating position on the platform one man is able to convey himself to the job location, lift himself into position, and do the work that might normally require 3 or 4 men. The unit is capable of travel over any area that is normally covered by fork truck. Manufactured by the Lift-A-Loft Co.

ICE MELTING COMPOUND

(Use Key # 704 on Inquiry Card on page 1)

NATIONAL ASPHALT Corporation announces a new rust-inhibited ice melting material reputed to have 32 times greater thawing capacity than salt at 5° F. Known as "Nacor Melts-It," it is made in the form of small balls, slightly larger than BB shot. Melting is accomplished by exothermic action (internal generation of heat). Corrosion, incident to most chemical thawing, is said to be greatly reduced due to the inclusion of "NA-23," a new inhibitor.

The material is recommended for melting ice in locations such as loading platforms, drives, walks, steps, ramps, parking lots, etc. In addition, the material is said to be suitable for thawing drains, gutters, downspouts, switches, sewers, etc. It can be readily mixed with abrasives for large scale use. "Melts-It" is available in 100-300-500 lb. fiber shipping drums. Ton, or larger, lots are packaged in 80 lb. bags.

THREE WINTER LINERS

(Use Key # 705 on Inquiry Card on page 1)

THE GENTEX CORP. has announced the development of winter liners for use under safety hats at various cold-weather levels down to sub-zero temperatures. Three different liners are designed to afford protection in the critical sinus and back-of-the-neck areas. All are completely free of metal, with non-conductive buttons, to eliminate electric shock hazard. They are snug-fitting, wrinkle-free, completely washable, shrink-resistant, and hold their shape after washing, the manufacturer states.

The WL-1 "Snowflake," designed for use in temperatures at the freezing level, is made of knitted stretch nylon, so that one liner fits all head sizes. It is independent of safety-hat headband. The WL-2 "Frost King," designed for temperatures down to zero, is made of woven nylon with a soft brushed inner surface for insulation and heat-retention. It is available in small, medium and large sizes and is also independent of helmet headband. The WL-3 "Polar," for temperatures at sub-zero levels, is made of wind-resistant fabric lined with soft pile for extreme conditions. Available in small, medium and large sizes, it is equipped with fabric ties which can be attached to the safety hat headband in high winds. The liner may also be worn under the safety hat without attaching. No headband adjustment is needed in either case. The chin-band of this liner is also pile-lined. It may be worn under the chin, across the chin or over the mouth.

THROAT MIKE COMMUNICATING SET

(Use Key # 706 on Inquiry Card on page 1)

A NOISE-FREE communicating set that permits complete freedom of action of the operator has been developed by the Ted Wester Co. The use of the highly sensitive throat microphone keeps out all extraneous noise from the lines and permits only passage of the operators voice. This makes it a highly desirable system to use in noisy locations. The complete unit is extremely light in weight and does not interfere with movement of action, smoking, or operating any type of machinery while in use. Safety features provide for complete disengagement in case lines get caught. Set consists of 2 throat microphones, 2 headsets, 2 junction boxes and necessary wire connections. Field wire can be supplied on order. Requires use of inexpensive 4½ volt battery.

NEW TRUCK AND RAIL DOCK SHELTER

(Use Key # 707 on Inquiry Card on page 1)

FROMMELT INDUSTRIES, has just announced the development of a new truck and rail dock shelter. Called "Econo-Dox," this new shelter incorporates such patented features as one-man operation in seconds, spring-tensioned upper frame, adjustable front head curtain, UL approved fabric, frame assembled at the plant, etc. Standard fabricated sizes for the dock shelters include a maximum width up to 11 feet and maximum height to 13 feet. Standard projection is 2' 9". Greater projection (to 4'6") can also be obtained. There are no alternate selections on the type of material or the frame and cover fabrication except as specified by the manufacturer. The cover is of 12.29-ounce duck in green color only.

BOOM CRANE SAFETY GUARDS

(Use Key # 708 on Inquiry Card on page 1)

A SAFETY DEVICE, which protects crane operators and ground personnel from the hazards resulting from accidental contact with high voltage power lines, has been introduced by the Saf-T-Boom Corp. Leading authorities, according to the manufacturers, have stated that the guard will withstand up to 36,000 volts for five minutes without current leakage. The unit has also withstood a 5,990 pound drop test, the makers state.

The "Saf-T-Boom" guard is light in weight, easily adaptable, does not obstruct vision nor affect operation of the crane. The complete unit consists of a cage of ¾ inch and 1 inch steel tubing mounted on top of the crane's boom. Weighing 250 pounds, it is furnished with four G. E. 15KV insulators. When the guard comes into contact with a live power line, the insulated frame redirects the current back into the line rather than dissipating it along the crane boom. Two models are available, one for cranes of 20-tons or larger and one for cranes under 20-tons. Models can be modified to fit almost any crane.

IMPROVED DRY CHEMICAL EXTINGUISHER

(Use Key # 709 on Inquiry Card on page 1)

A NEW FAMILY of dry chemical fire extinguishers has been announced by Ansul Chemical Co. The extinguishers feature "fresh-fill" performance including maximum fluidization, absolute gas tightness and simpler operation. The new units, called Ansul "D" models, 5-pound, 10-pound, 20-pound and 30-pound capacities, were given U. L. ratings at 8 B:C, 16 B:C, 20 B:C and 20 B:C respectively. The line has been re-

designed to achieve the functional look. Units can be obtained in fire red or in white for maximum visibility. Design and engineering improvements include changes to make the extinguishers capable of giving "fresh-fill" performance under all conditions. The models also have an improved gas tightness for assured maintenance of pressure.

In order to achieve maximum distribution of the dry chemical inside the extinguisher without inverting it, Ansul redesigned the gas tube by relocating and rearranging the gas ports and by adding neoprene sleeves on the tube. When a carbon dioxide cartridge is punctured, the new tube blasts gas into the extinguisher shell at crucial points, forcing the dry chemical out through the nozzle in an even, uniform stream. The neoprene sleeves prevent dry chemical from escaping the wrong way into the cartridge. The tube is so gas tight that the cartridge can be punctured to pressurize the extinguisher and then unscrewed from the cartridge receiver. Even though the cartridge is gone, the extinguisher will remain fully pressurized for a matter of days.

The operation of the 20 and 30 pound "D" extinguishers has been simplified by using the hose to prevent accidental puncturing of the CO_2 cartridge. This arrangement eliminates the ring-pin, cutting out one step in activating the extinguisher. The instruction plate has also been simplified for quick comprehension by novice firefighters. A number of changes have been made to increase the "D" models' resistance to corrosion; a restyled fill cap, a highly corrosion-resistant paint job and a new type of thread and gasket seal on the steel hose connection. Visual seals tell at a glance whether the hose has been removed and the extinguisher pressurized.

TRANSISTORIZED MEGAPHONE

(Use Key # 710 on Inquiry Card on page 1)

SPEECH IS broadcast over a full quarter mile range with maximum distinctness and intelligibility by the Falcon "Chief," a transistorized power megaphone offered by the Falcon Alarm Co. The unit employs a battery, capable of 6,000 two-second messages, and push-pull transistors in a special circuit to provide clarity and carrying power. The unit is fully guaranteed for six months.

Red and gray vinyl and polyethylene plastics of high abrasion and impact resistance are extensively used in construction. All materials and finishes are suitable for rough outdoor use. The "Chief" is light in weight, easy to carry and requires no warm-up period. It weighs 3¼ lbs. with battery and measures 15¾" long by 9½" maximum diameter and is furnished with a plastic sling strap and squeeze-grip for easy one-hand operation. The megaphone lends itself to a wide variety of indusrtial and municipal department uses, in summoning aid, giving warnings and instructions, etc.

NEW CHEMICAL BURN STATION

(Use Key # 711 on Inquiry Card on page 1)

"NEUTRALIZE," a buffering solution developed a few years ago by the E. D. Bullard Co., has a new package to make it more convenient for people working with acids or alkalies. The compound is a phosphate buffer that inactivates effects of chemical irritants in the eyes and on the skin. Water, if used long enough (15 to 30 minutes) and in large enough quantities will dilute chemicals, but it is only the top layer of the chemical that is removed easily, the manufacturer states.

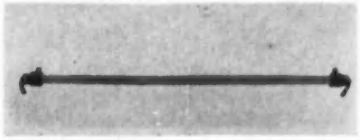
A relatively small quantity of "Neutralize" counteracts either acids or caustics. It stops the chemical action, and prevents damage to the eyes or skin that could result during the slow process of dilution or irrigation by water. It is packaged in 4, 8 and 32 ounce and one gallon Polythylene bottles and in larger quantities for use in portable eyewash fountains and showers.

To alert employees requiring first aid for chemical burns, this new chemical burn station has been developed. This station, composed of a large plastic backboard and a container for a 32 ounce bottle of solution, attaches to any wall surface. Manufactured of shatterproof plastic, the backboard is brilliant yellow. Silk screened on it are complete instructions for the emergency first aid treatment of chemical burns.

MERCURY VAPOR LAMP RECONDITIONING

(Use Key # 712 on Inquiry Card on page 1)

A RECONDITIONING process for worn or burned out mercury vapor lamps has been announced by Quartz Radiation Corp. The "Nu-Life" process restores lamps defective in light distribution and printing definition to operating efficiency. Practically any lamp—regardless of make—can be reconditioned. Necessary elements are replaced, the entire unit overhauled and the lamp "job-proven" in the company's testing laboratories. Reconditioned units are fully guaranteed.



DRUM CONVERSITION KIT

(Use Key # 713 on Inquiry Card on page 1)

AN UNSANITARY, unsightly, fire-hazardous situation is entirely eliminated with "Convert-A-Drum Swing-Top Lids and Kits." The lids from General Scientific Equipment Co. quickly convert empty drums (of 15, 30 and 55 gallon capacity) into efficient, safe, sanitary and attractive waste receptacles for business, industry and institutions. A complete "kit" includes one swing-top "Convert-A-Drum Lid," a can of "Instant-Dry Spray-On" to give the drum an attractive new look, and one "Easy-On Burlap Bag" that hooks inside the drum to prevent

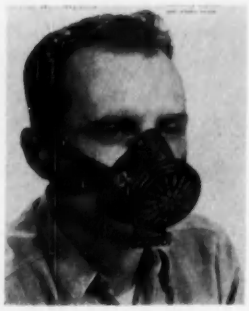
corrosive action of waste and to facilitate disposal. The lids are made of a fire-resistant heavy steel, containing two free-swinging doors with a rust-proof, baked, green enamel finish. The lids are easily attached to any standard drum. Available as individual units, or as part of the "kit" mentioned above.

FIRE VALVE RANGE EXTENDED

(Use Key # 714 on Inquiry Card on page 1)

THE SERVICE range of Cooper Alloy Corporation's stainless steel fire protection gate valve has been extended by the addition of four, increased temperature range, fusible links with melting points of 212°F, 250°F, 286°F and 360°F to permit the valve to be installed in networks and areas where the temperature and/or processed fluids exceed 160°F.

One link, selected for the desired maximum temperature exposure is inserted into the valve's bonnet which holds a set of stainless steel springs and a one piece disc carrier in the open position. When the link melts, the springs are released and the valve is immediately closed to prevent any further fluid from feeding into the network. A rotating double disc assembly designed into the valve maintains a tight seal should the body distort at elevated temperatures. Color Coding of the links makes it possible to identify temperature service immediately from a distance. Produced for 150 psi service, the valve is available in both screwed and flanged ends, in sizes from ½" to 2". The valve body is cast in stainless steel 304, 316, FA-20 as well as nickel and monel.



VARIABLE DENSITY RESPIRATOR FILTER

(Use Key # 715 on Inquiry Card on page 1)

DEVELOPMENT of a new variable density respirator filter has been announced by American Optical Co. The new filter has Bureau of Mines approvals for respiratory protection against all dusts not significantly more toxic than lead, pneumoconiosis-producing and nuisance mists and chromic acid mist.

The "Red Devil" filter is composed of two sections—a red prefilter and the filter body. The built-in prefilter is composed of interlocked viscose fibers to trap larger sized airborne particles, agglomerates of smaller particles and a reasonable amount of microscopic particles. Its relatively open structure results in a large storage capacity for retained particles and no increase in breathing resistance. The grey filter body is composed of microfine viscose and vinyon fibers and ultrafine asbestos fibers. The viscose and vinyon fibers form a constant latticework to hold the extremely fine asbestos fibers. These asbestos fibers vary in density from front to back. This variable density feature prevents a rapid increase in breathing resistance and the plugging of the filter.

The "Red Devil" is made to fit standard AO single and twin cartridge respirators. It is not affected by climatic conditions and can be stored indefinitely without deteriorating. The filter is practically weightless (300 filters weigh 1 oz.). Breathing resistance is extremely low—about ½ inch of water at 85 liters per minute air flow.

ACID RESISTANT CHAINS

(Use Key # 716 on Inquiry Card on page 1)

TWO NEW CHAINS, "X-Weld Acid Pickle" and "X-Weld Type 321 Stainless Steel," have been developed and designed to provide optimum service in high temperature applications and also in solutions of sulphuric or nitric acids as used in industrial pickling operations. Manufactured by the American Chain Div., American Chain & Cable Co., Inc., these chains will provide long service life due to their corrosion resistant characteristics, it is claimed.

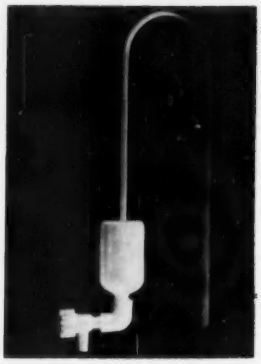
The "Acid Pickle Chain" can be used in concentrations of sulphuric acid up to 20 percent and at temperatures to 200°F. It will not scale below 1700°F. It is available in five sizes of 9/32, ⅜, ½, ⅝ and ¾ inches with working load limits of 1600, 3200, 5200, 7500 and 9850 pounds respectively.

The "Type 321 Stainless Steel" chain, by use of a titanium addition, eliminates intergranular corrosion in the carbide precipitation range of 800–1650°F. It is recommended, by the manufacturer, for use in nitric acid pickling operations under high temperature and/or atmospheric oxidation conditions.

POLYETHELENE SELF-PRIMING SYPHON

(Use Key # 717 on Inquiry Card on page 1)

AN ALL-POLYETHELENE syphon with a built-in "self-starter" is now available from General Scientific Equipment Co. The syphon consists of a semi-rigid "U" tube which has an open end and a flexible "squeeze" bulb attached to the other end with a stopcock outlet.



To operate the syphon, the user first places the open end of the "U" tube in the liquid to be syphoned. The stopcock is then closed. Squeezing the bulb primes the syphon by forcing air out of the open end into the liquid. When the bulb is released, the partial vacuum created sucks the liquid into the open end, over the "U" bend in the syphon tube, and—when the stopcock is opened—into a waiting receptacle.

Safe and simple to use, the syphon is easy to clean and practically unbreakable. It is resistant at normal temperatures to concentrated acids, oxidizing agents, hydroxides, and polar liquids. The syphon comes in two sizes. Size 1 has a half-inch I. D. tube for use with large drums and carboys. Size 2 has a one-quarter inch I. D. tube for use where a slower flow is suitable.

NEW DISPENSER FOR ON-THE-JOB WASHUP

(Use Key # 718 on Inquiry Card on page 1)

"STA-LUBE" WATERLESS hand cleaner announces a new precision-built dispenser. Because no water is needed, the handy "Sta-Lube Dispenser" can be placed right at the work station to remove grease, paint, mastic, ink, tar, etc. This saves time of washroom trips and the expense of cleaning messy sinks and opening clogged drains.

Better than 800 cleanings are obtained from one gallon of cleaner when the special dispenser is used, because each dispensing operation releases just the right amount for a thorough cleanup. This means savings of up to 50% in hand cleaner expense. Available from Sta-Lube, Inc.

NEW SAFETY CAP

(Use Key # 719 on Inquiry Card on page 1)

A NEW TYPE of protective head gear has just been announced by the B. F. McDonald Co., manufacturers of industrial safety equipment. As a companion to the McDonald aluminum "T" Hat, the "Bump Cap" fills a need for workers in confined areas where there are head hazards.

It is made of a new unbreakable, resilient plastic. It is also resistant to chemicals. Flat space on front of cap, 1¾" square, is

suitable for placing company insignia. Comes with adjustable head band and chin strap and weighs only 6½ oz. complete.

NEW LINE OF SAFETY GOGGLES

(Use Key # 720 on Inquiry Card on page 1)

BAUSCH & LOMB Optical Co. announces a complete new line of cup-type safety goggles which includes eight new models designed specifically for heavy industrial operations. Improved in design and construction, these goggles are injection molded from tough thermo-plastic, they have high impact resistance and their contour design guarantees safety and fitting comfort. A lustre finish gives added ease to cleaning and sterilization.

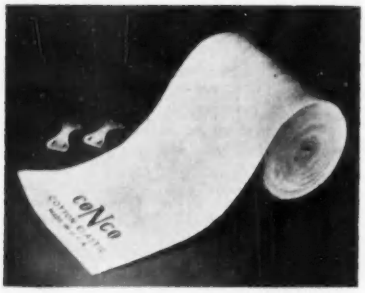
Highlighting two models of the new line is a removable soft sponge face pad. Snaps at top and bottom of pad make it easy to detach for cleaning. This new feature assures sanitation when goggles are worn by more than one person. The four new chipper-type goggles have heat-treated lenses and perforated side shields for ventilation. Adjustable head band is standard equipment. New cup-type goggles for welders feature a dark green glass which provides complete protection from harmful infrared and ultraviolet rays. "Arc-Ban" is available in 10 shades to allow proper radiation protection for every type of welding. New side shields guard the eyes against sparks and side flashes.

SELF-PROPELLED SCAFFOLDING

(Use Key # 721 on Inquiry Card on page 1)

A NEW IDEA in scaffolding has been designed by Castle Manufacturing Co. The unit is a piece of self-propelled scaffolding on wheels on which a workman can propel himself from location to location while in an elevated position. A manufacturer's test showed that any user can save as much as 25% of his time by using the unit. It is designed for use in manufacturing, construction, maintenance and other work performed at elevated positions.

"Self-Propelled Scaffolding" is made of welded and bolted steel construction to withstand rugged use. The wooden platform can be adjusted to seven different positions for reaching heights up to 12 feet. It features a safety step for surer footing and a safety brake to lock unit in position while working. It is further claimed that the unit has a maintenance-free steering and drive system. The complete unit can be assembled and disassembled in less than 60 seconds for easy transportation.



NEW PRESSURE BANDAGE

(Use Key # 722 on Inquiry Card on page 1)

A NEW PRESSURE bandage with unique advantages for industrial medicine has been developed by Conco Surgical Products. Called "Elasticfoam," it is a combination of the cotton elastic and pure soft foam rubber. This new bandage can be applied quickly and easily, and used directly over open wounds, burns, and dermititis. Because it absorbs a minimum of five times its own weight of moisture, the bandage eliminates the necessity of frequent dressings and maintains a minimum adherence to wounds.

Non-toxic and non-allergenic, it can be applied, removed, and reapplied with no discomfort to the patient. It can be sterilized, and laundered repeatedly, claims the manufacturer. Slits on the foam rubber create a multiple gripping surface which will remain in position for an indefinite time. No shaving of body parts, no adhesive, and no powder is necessary.

NEW PLASTIC-COATED GLOVE

(Use Key # 723 on Inquiry Card on page 1)

GREATER EASE of finger movement and added comfort and protection are said to be provided by a new all-purpose plastic-coated glove manufactured by Advance Glove Manufacturing Co. Featuring box-tipped fingers, curved to fit each finger of the hand, these new gloves provide the added dexterity of an "extra set of finger nails" in handling small parts. The glove fingers never hug the hand and thus allow free air circulation when the hand is flexed. Available with plastic coating on the entire glove or on the palm only, this glove is liquid proof and resistant to most acids and other chemicals. It is also warm and long wearing. Knit wrist, band-top and guantlet styles for both men and women are available in several types of coating to fit every need.

MULTI GAS DETECTOR

(Use Key # 724 on Inquiry Card on page 1)

THE "DRAGER" gas detector is designed for tracing and determining gas concentrations to take semi-quantitative gas estimations which can be read at the site of the test.

The gas detector is of particular advantage for controlling the maximum allowable concentrations of contaminated air, for detecting leaks in gas pipes and reservoirs, for detecting gas losses in certain types of plants, for identifying certain unknown gaseous contaminations, for technical gas analysis.

Over 22 different detecting tubes for the detection of different gases, or different concentrations of gases are constantly being improved in sensitivity and stability to meet the demand for tubes to detect gases not covered by existing tubes. The gas detector is a hand operated instrument, easy to use, dependable, and has already been extensively proved in field use in chemical plants, oil refineries, steel mills and laboratories of many kinds. Available from the Safety Supply Company.

LADDERS WITH BUILT-IN TOOL HOLDERS

(Use Key # 725 on Inquiry Card on page 1)

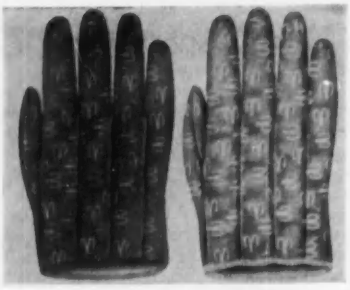
THE ONE-PIECE "Tool-Tra" top and the fold-down bucket holder are standard features on some of the industrial aluminum ladders manufactured by R. D. Werner Co., Inc. The specially designed top will accommodate hammers, pliers, screwdrivers, punches and other tools, as well as paint brushes, small paint cans, nuts and bolts, keeping them within easy reach of handyman and professional workmen. It

helps prevent accidents and damage that might result from falling tools, and permits work to be accomplished with greater security and assurance because of its concentric circular ribs that prevent objects from slipping. These two built-in features are among many assets found on Werner "Alumiladders," lightweight, easy-to-handle ladders, tested and approved by Underwriters' Laboratories.

METAL AND GLASS DOORS ACT AS FIRE SCREENS

(Use Key # 726 on Inquiry Card on page 1)

A NEW FIRE protection unit, announced by Overly Mfg. Co., consists of metal and glass doors and frames to be used as smoke and fire screens in corridors. The frames have been awarded a "C" label by Underwriters' Laboratory, which means the frames will withstand fire and smoke for 45 minutes. By placing these units as smoke and fire screens in the corridors of buildings, an area of refuge is provided within the building. People can be quickly moved into this area, protected from the smoke and flames, and then be evacuated in a more orderly manner.



NEW IMPREGNATED WORK GLOVES

(Use Key # 727 on Inquiry Card on page 1)

TWO NEW vinyl-impregnated fabric work gloves have been developed to fit widely different job requirements. One, the "Super Werx," is a heavy-duty type which is said to outwear 18-ounce canvas gloves 6 to 1 and also many types of leather. The other, "Werx-Lite," is exceptionally light and flexible yet, because of its vinyl impregnation, is claimed to outwear 8-ounce cotton gloves 3 to 1. It is designed for use where dexterity and sensitive touch are important, such as assembling small parts. Both gloves are developments from the original "Werx" vinyl-impregnated glove. In addition to their longer wear, all three gloves have a non-slip grip and are washable. Available from the Edmont Manufacturing Company.

NEW PERMISSIBLE LIGHT

(Use Key # 728 on Inquiry Card on page 1)

THE PBF-5, a powerful permissible light with official U. S. Bureau of Mines approval, is announced by Carpenter Mfg. Co. The portable light, available as either a hot-spot or semi-flood, is said to be the most powerful of its kind and low in cost. It is specifically recommended for many applications in dust or gas-laden areas below or above ground.

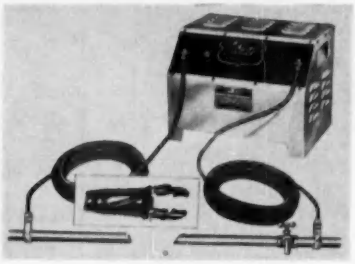
The unit is of cast and spun aluminum construction, has a high-impact plastic lens,

and features a two-filament bulb for added safety. Included is a high-capacity 7½ volt battery pack. The bulb draws 1.25 amps and is rated at 27,500 beam candlepower with the hot-spot reflector. Total weight including battery is only 13 lbs.

NEW PIPE THAWER

(Use Key # 729 on Inquiry Card on page 1)

TRINDL PRODUCTS, Ltd., manufacturers of the "Therm-O-Tron Pipe Thawers" used by plumbers and steamfitters for thawing out frozen water pipes in factories, announce the addition of a new model to their line. To meet the demands for industrial applications such as food products, oils, greases, chemicals, etc., which require a steady free flow through pipes regardless of temperatures, this new model operates on any 220 volt current customarily used in industrial operations. The 110 volt unit has



been redesigned to operate on any 15 amp. branch circuit. Both models can also be used for sweating of copper pipes and fittings and many types of production and maintenance soldering, brazing, and heating jobs.

AUTOMATIC HAND DRYER

(Use Key # 730 on Inquiry Card on page 1)

A MORE efficient automatic hand dryer for employee restrooms has been made possible by a new electric motor developed by the World Dryer Corp. and the General Electric Co. The new motor coupled with a repositioning of the basic components of the dryer, have induced a 20 percent increase in the hot air flow. The new motor greatly reduces the time required for hand drying, claims the manufacturer.

The improved motor design allows air to move more directly and smoothly to the high speed fan. The one-tenth, 7500 RPM single phase motor operates at 110 or 220 Volt AC. A 50-60 cycle DC motor also is available. The air moving across the heating element is heated at 140° F at room temperature. An automatic circuit breaker prevents over-heating. The dryer, actuated by a push button, operates for 30 seconds.

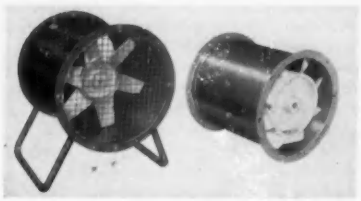
Because of sturdy construction, the dryer is protected against vandalism. The cover of the dryer consists of a one-piece grey iron casting fitted with a chrome insulated push button and revolving nozzle, an expanded metal grill and a recessed instruction plate. All exposed portions are finished with an acid resisting porcelain enamel.

NEW PRESSURE TYPE FANS

(Use Key # 731 on Inquiry Card on page 1)

A NEW LINE of pressure type tubeaxial fans for use in industrial applications has been developed to handle air, fumes, and light dusts generally encountered in industry or in special machining operations. Designated as "Propellair Type DT," the new fans are equipped with matched design motors and propellers. They are available with propeller diameters of 8, 12, 16, 20, and 24 inches.

All propellers are cast of a magnesium-aluminum spark-proof alloy of the latest airfoil designs to provide maximum efficiency over the pressure ranges at which they may be operated. Capacities range from 200 to 12,000 cubic feet per minute from free air to 5 inches static pressure.



Totally-enclosed motors power the new fans. Equipped with sealed, prelubricated cartridge bearings, they may be mounted in any position. The motors are protected against rust and insulation deterioration. Either single phase or polyphase motors in all standard voltages, and high temperature Class B and explosion-proof motors are available.

The fan bodies are compact tubeaxial drums of heavy gage rolled steel. Sizes above 8-inch are equipped with mounting flanges. Wire mesh guards, legs, venturi inlets, and other similar accessories are available. Where highly contaminated exhaust requires that the motors be outside of the airstream, belt-driven models with gas-tight belt tubes and cast iron bearing housings are available. Corrosion resistant models with shaft seals are also available from Propellair Div., Robbins & Myers, Inc.

CONTROL SYSTEMS FOR PLANT AUTOMATION

(Use Key # 732 on Inquiry Card on page 1)

INTEGRATED CONTROL systems are being introduced to industry by Electronics Corp. of America, Photoswitch Div. These systems are said to offer a practical approach to complete automation for plants of all sizes at a nominal cost. All controls necessary for single or multiple functions can now be built into one integrated control system, "tailored" to meet the needs of any plant. Because of the wide range of "Photoswitch" photoelectric and electronic controls, applications are unlimited. It is possible to control any one or combination of functions or processes from one central point.

The availability of "Photoswitch Integrated Control Systems," pre-engineered, pre-assembled and pre-tested assures efficient operation. Service charges are eliminated for on-the-job assembly of control components by untrained personnel.

"SAFETY MAINTENANCE" MAGAZINE

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. . . talks the worker's language!

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packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

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Make Your Safety News your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a deceptive rascal. His hi-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's odorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning: First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing. BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . so can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or leaky muffler. Play it safe.
1. Be sure your muffler and exhaust are in good condition (they can last long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
AN INTIMATE LOOK AT FOUR VIL-LAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but alibis only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

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Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

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